

January-February
1957

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The Green Thumb

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The Green Thumb

Vol. 14

JANUARY-FEBRUARY, 1957

No. 1

Colorado Forestry and Horticulture Association

Organized in 1884



"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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	Plus Mrs. Vella Conrad and Fred R. Johnson
Assistant Secretary-Treasurer	Mrs. Ruth E. Sauer
Editor	Patrick J. Gallavan

CALENDAR OF EVENTS

Jan. 28 ANNUAL BANQUET, Denver Country Club, cocktails at 6 p.m., dinner at 7 p.m. Come one, come all! Call Horticulture House for tickets.

Feb. 3-4 Lecture Program, "Florida," Arthur C. Twomey, Denver Museum of Natural History, Sunday Programs 2:30 and 4:30 p.m., Monday Programs 6:30 and 8:30 p.m.

Feb. 4 "Fun With Flowers" first Monday of each month, Garden Center, W. Alameda Avenue and Kalamath Sts. 10:00 a.m.

Feb. 5 Nature on the Screen Series, "Animals at Night In Color," Howard Cleaves, Denver Museum of Natural History, 8:00 p.m.

Feb. 5 Denver Treemen Educational

Meeting — Business Principles, 8:00 p.m. Horticulture House.

Feb. 6 Botany Club, the first Wednesday of each month 7:30 p.m. Horticulture House, Evergreens Here and There, Mrs. Barbour.

Feb. 10-11 Lecture Program "New Zealand" Bathie Stuart, Denver Museum of Natural History, Sunday Programs 2:30 and 4:30 p.m., Monday Programs 6:30 and 8:30 p.m.

Feb. 13 Organic Garden Club meets the second Wednesday of each month 8:00 p.m., Horticulture House.

Feb. 13 - Apr. 3 Landscaping Your Home, M. Walter Pesman, Wednesday, 6:10-8:00 p.m. C.

(Continued on Page 5)

PATRICK J. GALLAVAN	Editor	MRS. HELEN FOWLER	Librarian
MELANIE BROWN, Asst. Editor and Librarian			
MR. AND MRS. GILBERT SAUER, Custodians			

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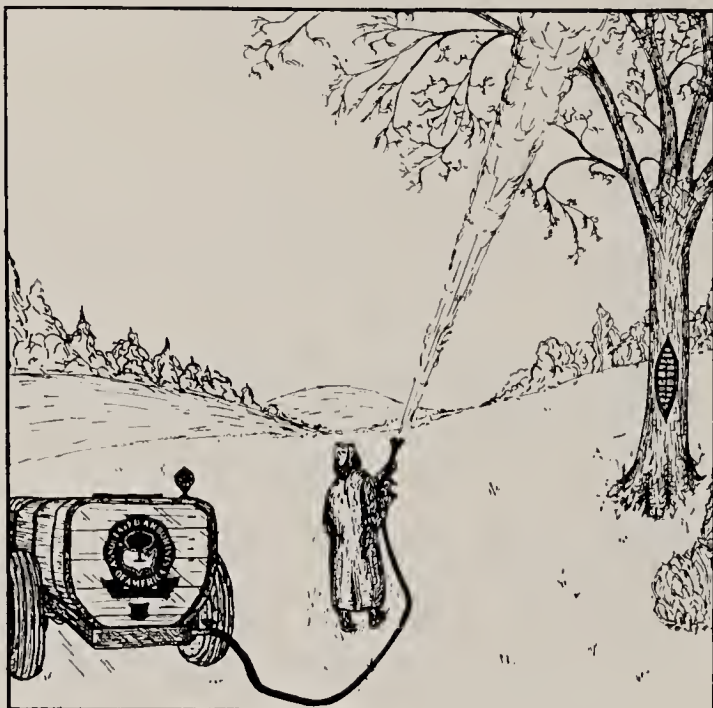
THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

A non-profit, privately financed Association

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CALENDAR OF EVENTS—Cont.

U. Extension in Denver. Same course will be given in Boulder at the University. Call Horticulture House for time.

Feb. 14 Denver Rose Society, Room 1, City and County Bldg., 7 p.m.

Feb. 17 - 18 Lecture Program, "My California" Stan Midgley, Denver Museum of Natural History, Sunday Programs 2:30 and 4:30 p.m., Monday Programs 6:30 and 8:30 p.m.

Feb. 24-25 Lecture Program "Hawaii,"

Fran William Hall, Denver Museum of Natural History, Sunday Programs 2:30 and 4:30 p.m., Monday Programs 6:30 and 8:30 p.m.

Feb. 25-26 Colorado Nurserymen & Treemen Short Course, Colorado A & M in Fort Collins, Colorado. Registration at 9:00 a.m., first lecture at 10:00 a.m.

Green Thumb Program at 9:00 a.m. each Saturday, KLZ 560 on your radio dial. Pat Gallavan, horticulturist, with Dale Morgan.



NURSERYMEN'S AND TREEMEN'S SHORT COURSE

The Colorado Nurserymen's Association and the Treemen of the state meet in a joint short course at Colorado A & M Monday and Tuesday the 25th and 26th of February to discuss growing, planting, trimming, and other phases of horticulture that pertain to their fields. This meeting is a combined effort of both groups in cooperation with the horticulture department of Colorado A & M College and is open to any interested persons.

A definite program has not yet been arranged but some of the subjects to be covered are as follow: the role of the arborist and the nurseryman in the community, new equipment for the nurseryman and arborist, shade tree evaluation, standards and ethics, interesting trees of Colorado, insects and diseases.

Registration for the short course will start at 9:00 a.m. Monday, February 25 and the first talk will begin at 10:00 a.m. A joint banquet will also be held Monday evening.

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ANNIVERSARY ARRANGEMENT

Pictured above is an attractive arrangement honoring Mr. and Mrs. L. C. Shoemaker at their golden wedding anniversary reception on December 2, 1956, at the Washington Park Community church in Denver. The double rings with sets of dried flowers (hollyhocks and black-eyed susans) were painted with gold paint. The arrangement is outlined with juniper sprays, symbolic of Mr. Shoemaker's thirty years with the U. S. Forest Service as a forest ranger. The yellow mums are on a cardboard base lined with gold paper. The arrangement and picture are the artistic creation of Mr. and Mrs. Ray Turnure.

Our congratulations to Mr. and Mrs. Shoemaker. We recall with pleasure their faithful service as the first treasurer of the Association and custodians of Horticulture House.

Both native Coloradans, they were married at Carbondale, Colorado, December 2, 1906. During the past several years, Mr. Shoemaker has completed a story on "The First Forest Ranger," a biography of William R. Kreutzer, which will be published soon. He has also written a "History of the Roaring Fork Valley," also a number of articles for The Green Thumb.

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ARRANGEMENT OF THE MONTH

Cattails, yellow aspen, red chokecherries. These familiar plants brought together from the widely separated environments of swamp, mountain, and plains terrain are colorfully representative of the extremes of climate and soil here in the Rocky Mountain region. Here they are arranged in a rustic black jug which is against a neutral wall.

Since it is a large bouquet, floor placement is better, proportion wise, but any low stand would probably be equally effective.

Both photos and arrangements by Mr. and Mrs. Ray Turnure

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CONCERNING PLANTERS

BY CHARLES C. FISHER



WITH another winter season well on its way, many home owners are turning their attention to house plants. For areas where the garden is dormant during the winter, the culture of house plants is perhaps the most practical method of continuing an interest in horticulture.

The best procedure for a home owner is to take an inventory of the plants growing in the house at this time. Are the plants in a vigorous and healthy condition? With outside interests during the summer months, these indoor plants received less attention and by this time may be suffering from a nutrient deficiency, be in a pot-bound condition, and be overgrown or diseased. Fertilize, repot, prune, and spray to bring these plants back to a healthy condition. After such a clean-up there's probably room for another plant or plants; decide what type is preferred or could best be used — a flowering plant or a foliage plant. If flowering plants are to be used, they are best potted separately and the foliage plants have a better appearance when several types are combined in a planter.

Perhaps the most important aspect of a planter for the home is originality. This applies to the container, the plant material, and the arrangement of the plants. Regardless of the planter size, it is a significant addition to the decor of a room; this fact should be considered when planning and maintaining it.

To achieve originality with a container, look about the house for an attractive receptacle. One need not be concerned when a chosen container does not have drainage facilities. With a bottom layer of gravel and careful watering, drainage holes are not essential; this fact enlarges the field for making selections. As a suggestion, if you have ever done any gold panning, you might have saved the pan which is sufficiently deep to hold several foliage plants. Also the large supply of available ceramics furnishes great variety. The type and size of plant material will help determine the planter size, especially depth, for larger foliage plants do require good anchorage.

To choose the plants, first determine where the planter will be located. If it is to be on a table, standard foliage plants of average to moderate heights should be employed. The following genera are a few that provide numerous species of plants suitable for use in table planters: *Dracaena*, *Ficus*, *Nephthytis*, *Peperomia*, *Philodendron*, and *Pittosporum*. The floor planters permit using plants of larger sizes commonly seen in contemporary settings. The following genera provide examples of suitable plants for this type of planter: *Bambusa*, *Dieffenbachia*, *Ficus*, *Monstera*, *Philodendron* and *Schefflera*. To be most effective, a wall planter requires plants that are vines and climbers. The various species of *Cissus*, *Hedera*, *Hoya*, *Philodendron*, and *Scin-*

dapsus are some of the most effective plants for this use. Before buying any new plant materials, a good suggestion is to use what you have on hand — perhaps there are several potted plants about the house that could easily be combined to make one effective planter.

When purchasing the plant materials for a new planter, it is wise to shop around at the various florist shops. You will notice that many stock the old reliable forms while others will have new introductions or some of the uncommon plant types. It is this aspect of new or rare forms that gives originality. Undoubtedly the most important consideration for success is a combination of plants having similar requirements. The light quality needed for normal growth, whether it be low, moderate, or full intensity, should be the same for any one group. The same holds true for water requirements. To achieve and maintain uniformity, plants of similar growth rates should be used. Rely on your florist to help with this.

Potting material can be obtained from any annual flower or vegetable garden. If this soil has been cultivated during the past season, the addition of a small amount of peat will improve the structure and the soil will then be excellent for house plants.

Try several arrangements with the potted plants on a table before final placement. A practical method is to feature height either in the middle of the planter or off center at either side. This height should then be balanced with smaller plants. Balance and proportion between heights is just as vital to the appearance as balance of shapes

and outlines. This experimentation and arranging is easy while the plants are potted individually, and it is this procedure that results in an effectively original grouping. Of course a florist can readily do all this for a customer, but much more satisfaction and continued interest is accomplished when an individual does the work for himself.

Upon completion of the potting, the planter is ready to take its place in the decor of the room. The fundamental needs of plants are supplied by careful watering, sufficient light and heat, regular applications of fertilizer, and occasional pruning. Such simple care will grow healthy specimens for the most particular. If a water tight container is used, over watering will encourage diseases — so water only when the surface soil has dried. Know and provide the proper light requirements by locating the planter for sunlight or for light from artificial sources. Establish a feeding schedule and maintain the vigor of the plants with a commercial fertilizer. Watch for insects. The common aphid, red spider, mealy bug (and other scale insects) can easily be controlled with chemicals from aerosol applicators. A sharp knife or pruning shears can be used without hesitation for retaining the desired size or shape of the individual plants. An occasional pruning also improves their vigor and health.

Take a house plant inventory today, perhaps you'll find there is space for a planter and then there will be the fun of arranging and planting something original for bleak winter months.

Seasonal Dormant Spray of Evergreen and Shade Trees

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Photograph courtesy American Association of Nurserymen

GRACIOUS LIVING WITH PLANTS AND PLANTERS

BY KEN WILMORE

In the trend of today's more modern and gracious living, one can expect to find built-in planters just as standard an item as the automatic washer, dryer, or oven. The trend is going from old fashioned, drab vases, and other commonplace frills to practical and fitting planters which serve a dual purpose, such as room dividers and/or screens. Many of these are built in, but the versatile planter can be had in almost any style to fit the decor in which it is used. There are planters available in wood, wrought iron, brass, copper, aluminum, fibre glass, pottery, and ceramic.

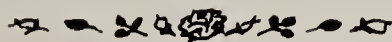
There are many varieties of plants ranging from huge philodendron, dieffenbachia, and Rubber Trees (*Ficus*) to small peperomia, strawberry begonia, *Scindapsus* (variegated philodendron) and many others. One can find use for planters in every room in the house—even the bathroom which is ideal for some plants requiring a high humidity.

Planters can be made out of nearly anything that holds soil. Old brass and copper kettles, barrels, Grandpa's shaving mug, old wheelbarrows, old iron stoves, powder horns, dough boxes, and other such bric-a-brac have made terrifically effective planters. Even old cuspidors and thunder mugs are prac-

tically impossible to come by because of their well-deserved retirement into the dignity of planters.

Another idea for planters is a naturalistic arrangement of plants, rocks, and driftwood used together—even with a miniature lake and small waterfall. This idea can be a tremendously interesting hobby for those who want something individual and different.

In summing up, indoor plants and planters are so versatile in their usage and variety that they can be extremely important in the modern trend of interior decoration. Very few new homes are built now that do not include some provision for indoor planting, and every older home would take on a more gracious atmosphere through the use of indoor plants and planters.



USE PLANTS IN BARE CORNERS

Do you have a bare corner in your home, or your business building, or in your industrial building that is a problem? A suggested plan that will turn it into a definite asset is here illustrated by the American Association of Nurserymen.

Note the contrast in foliage, ranging from the bold broad foliage of the Philodendrons to the dainty foliage of the Pilea; if the photo were in color, it would be even more attractive, for the color of the foliage range from green to silver, rose and purple; the pyramidal arrangement adds life and vibrancy to the "hard-to-do-anything-with" corner.

ENJOY YOUR HOLIDAY GIFT PLANTS LONGER

BY HERBERT GUNDELL, DENVER COUNTY AGENT

Holiday gift plants, unlike house plants that you have in your home the year around, are doomed to a limited existence in most cases. Unlike your other house plants, they have been brought and perfected to profuse blooming under carefully controlled, almost ideal conditions, by the watchful eye of a professional grower. They have been given carefully adjusted levels of temperature during daytime and night as well as carefully controlled conditions of atmospheric humidity and, in some instances, been exposed to artificially shortened daylight hours in order to produce this profuse, beautiful mass of flowers for the holiday season. Very few homes, especially those that are heated with natural gas, provide conditions that could be considered ideal for these potted plants. Most homes are much too warm and too dry to maintain the necessary growing conditions for these plants. It is, therefore, a foregone conclusion that your colorful Christmas gift plant will have a limited stay with you. Enjoy it, therefore, as much as you can—while you can.

Among the holiday gift plants, the Poinsettia is probably the most unusual and certainly the most strikingly colorful. Actually, the red leaves that most people consider a portion of the flower are nothing other than bracts (leaves) that are so colored while the flower itself is quite small and hardly noticeable. Poinsettias require an average room temperature of around 70 degrees. They should be kept uniformly moist and should be located where they are not subject to sudden drafts. When the leaves of Poinsettias fade, the plant can be cut back to

about 4 inches stem length, and set out in the garden after danger of severe frost is past. Poinsettias will seldom bloom in the garden unless the daylight length can be manipulated in some measure. Nevertheless they make an interesting plant in the yard.

One of the most durable of gift plants is the Azalea. This acid-loving plant will flower over an extended period of time and will generally remain in good condition much longer than most of the other gift plants. It should not be watered too often, but thoroughly, when the soil starts to dry out. An addition of $\frac{1}{4}$ teaspoon full of iron sulfate to each plant every 4 to 6 weeks is advised in order to keep the soil medium acid. With the iron sulfate, other complete plant foods should be added at monthly intervals. A good many home gardeners attempt to transplant Azaleas outdoors in spring. This is possible but difficult because our soils are generally of alkaline reaction. If the plant is taken outside, it should remain in a pot, perhaps a size larger, and it should enjoy an acid soil mixture if at all possible.

Another very colorful gift plant is the Chrysanthemum. It has excellent keeping qualities and maintains its flowering over a sustained period of time. Temperature is quite important with Chrysanthemums. The daytime temperature should not exceed 72 degrees and the night temperature should be between 50 and 60 degrees. Therefore, one of the best locations for day and night temperature regulation is near a window. Generally the temperature next to the window is five to ten degrees below room temperature,

especially at night. Those varieties of Chrysanthemums which are used for forcing for gift plants are generally not too well adapted to outdoor planting because of their lateness of blooming and cultural requirements.

A gift plant that has maintained its popularity for many years is the Cyclamen. Daytime temperature requirement of Cyclamen is about 70 degrees with a night time temperature of around 55. It should be given much light and will produce best results in a sunny south or east window. The soil should never be allowed to go completely dry. The flowers will show the wilt before the leaves, and when this happens, the entire pot should be submerged in water until the soil is fairly soaked. Then remove the pot and allow to drain. Extreme drying and very low room humidity will cause the loss of the younger flower buds. With proper care, Cyclamen will bloom

over a period of 4 to 6 weeks in your home.

Among the holiday gift plants that are fairly well adapted to average home conditions is the Gloxinia. It is grown much in the same way as Saint Paulia or African Violets. A plant should also be kept adequately moist. Maintenance of artificially increased humidity is also desirable in the culture of Gloxinia. After it stops blooming, the plant should be allowed to rest in a somewhat more subdued location with a little less water. When new signs of growth become obvious, the plant should be moved to better light and fed regularly. With good care, Gloxinias may bloom for several years.

Although many home gardeners have the desire to maintain some of these holiday gift plants for a lengthy period of time, homes usually lack the proper facilities and space to do so. In any case, there is no advantage in fretting too much over them.

NOTICE — NOTICE — NOTICE — NOTICE — NOTICE

Annual Dinner and Business Meeting

Colorado Forestry and Horticulture Association

MONDAY EVENING, JANUARY 28, 1957 Cocktails 6:00 P. M. — Dinner 7:00 P. M.

Denver Country Club - East 1st Ave. and Franklin St.

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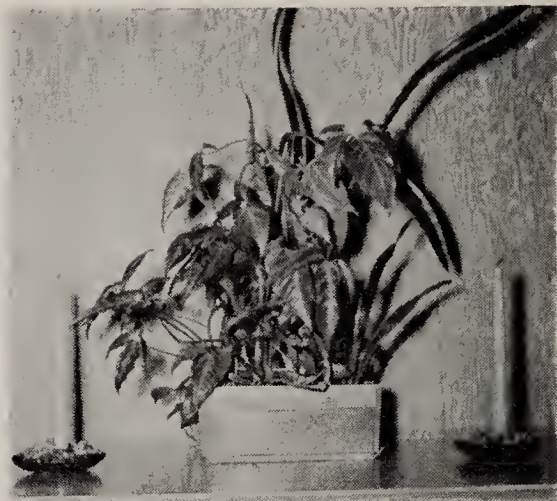
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PLANTERS WITHOUT DRAINAGE

BY HELEN MARSH ZEINER

The increasing popularity of planters and decorative pots without drainage holes has correspondingly increased the problems of hapless houseplant owners who do not consider the watering problems involved. Almost without exception these containers are made of non-porous material, such as glazed pottery or metal; and this, coupled with lack of a drainage hole, makes careful potting and careful watering, necessities.

Even the old-faithful clay pot with its drainage hole requires some drainage material in the bottom of the pot; but with the solid bottom containers now in favor, drainage material is infinitely more important. Very coarse gravel, small pebbles, clinkers, or broken flower pots are all satisfactory drainage material. Their purpose is to provide some place where surplus water may drain so that the roots of the plant are not standing in water. The depth of the layer of drainage material depends upon the size of the pot—certainly never less than half an inch in a very small pot, and in most planters an inch or more, depending on size. It is advisable to add a few lumps of charcoal, which may be obtained from the nearest outdoor fireplace. Some provision must be made to keep the fine potting soil from filling the spaces between pebbles or other drainage material. This may be accomplished by covering the drainage layer with some coarse compost or moss, which will hold back the soil but permit water to seep through. If you are using broken pots, the curvature of the pieces may be sufficient to hold back soil and provide a place for water to go. Broken pots also have the advantage of being very light in weight.

After the drainage layer is in place, add your favorite potting mixture and place your plants, allowing enough room at the top for watering. A good general purpose potting soil is composed of one-third sand or vermiculite, one-third peat or compost, and one-third loamy garden soil.

In containers without drainage, it is very important to avoid over-watering. Since most of these are non-porous, they will not dry out as fast as clay pots, this being true of any non-porous pot, even those with drainage holes. So check your plants carefully before watering. Use enough water to soak the soil, and do not water again until the soil feels dry to the touch. Spotted leaves or dropping leaves are two common signs of too much water and poor drainage.

AIR LAYERING OF HOUSE PLANTS

By R. L. WOERNER

Layering is a method of plant propagation which utilizes the tendency of many plants to produce roots from the cambium or growth tissue just under the surface of the stem. A portion of a growing plant is covered with a rooting medium to produce the necessary conditions for the stimulation of plant growth, after which the rooted part is removed from the "parent" and planted. Many shrubs can be rooted by pegging down their branches and mounding them over with soil. Since this cannot be done with house plants, the rooting material must be brought in contact with the plant stem in other ways. Chinese layering or marcottage was the process by which a wad of sphagnum was tied around the plant stem. This method required high humidity and constant attention to keep the moss moist. An improvement was the later system of pot layering, by which pots with special slits or openings on one side were placed on the stem and filled with peat moss or sphagnum. A sturdy stake was required to support the weight of the pot, and frequent watering was necessary. Today with the help of plastic sheeting, a modified form of Chinese layering commonly called air layering can be performed by anyone.

Rooting is induced at a point on the plant stem by removing a two-inch cylinder of the outer bark (on woody plants only), or by making a cut about one-third of the way through the stem. A bit of matchstick or sphagnum is

forced into the cut to keep it open. Then a generous ball of wet sphagnum is wrapped around the cut in the stem and held in place with a piece of plastic film similar to that commonly used for packaging. The plastic is secured at the top and bottom with rubber bands, which can be cut and tied around the stem. This makes a flexible, watertight covering requiring little attention. If the plant is located in a sunny window, it is advisable to cover the plastic with aluminum foil to prevent overheating of the rooting medium. When roots have filled the sphagnum ball (easily seen through the transparent plastic), the new plant can be cut off and potted up. The whole process should take less than eight weeks. Roots come more freely in the spring, but air layering can be done in any season of the year.

Many house plants are suitable for air layering including croton, ficus (rubber plant), oleander, dracaena, rhododendron, pandanus, ardisia, dieffenbachia, camellia, monstera and philodendron. Air layering is a simple way to save a plant which has become "leggy" or which has lost its lower leaves. Rubber plants should be rooted nine to fifteen inches below the tip. Others should be rooted below the lowermost leaf, but not more than two feet from the tip. The remaining parent plant can be discarded, but it will often "break" and send up new shoots, resulting in a satisfactory plant.

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PRECEPTS OF ARCHITECTURE IN GARDEN DESIGN

By CURTISS POLLARI

Architectural features are of primary concern in any garden. They are factors which once constructed are usually static. Because of prohibitive costs, these features are not likely to be changed with the whims and fancies of the owner. Therefore, extra care must be exercised in first designing and later executing the plan.

You, as the designer, recognize character changes in the garden with seasonal progression. With good architectural lines which support the plant design, there is little need to say "you should have seen my garden last month."

In most tract houses, the fence is of primary concern for through its correct placement, you have organized space. Every designer has three major areas to locate—planted space, open and paved space, and lawn space. Do not be confined to placing the fence on the property lines but rather create a dominate architectural line to which you may add other space areas. This fence line in most instances will bring the other areas into relationship.

The fence is an excellent place to feature plants. However these plants should embellish the design. They rarely have sufficient stability to "carry" a line and thus "hold the design together." A notable exception would be a formal hedge. This comparison will help you to understand the difference between an informal foliage line, a formal (hedge) foliage line, and an architectural line with informal foliage.

The static quality of architecture is one of the few design constants, therefore stability is the prime requisite of garden architecture and must be borne uppermost in considerations of the de-



sign. That is to say, when you, with pencil in hand, start designing the shape of the outdoor living areas, all your efforts should point toward the goal of making a garden that is pleasant the year around.

Fences are not the only factors to be considered; paths, low walls, and plant boxes are important and paths should be direct, with a minimum of waste space. Paths have excellent use for defining areas of lawn, thus cutting down on maintenance time.

Gardens which contain differences in elevation often need retaining walls. Walls are of an architectural nature and so contain the same qualities as fences, i.e., can become the dominant line and can combine areas and units. The line created by the wall should carry the eye around the design—unless stopped purposefully or unintentionally. The line should lead to some focal point in the garden. However, this should not be made so obvious that you soon tire of the scene. This created line should also be pleasant in appearance and have enough interest to “wear well” for years. At this point I might mention that in drawing many of these lines in plan, you may be disillusioned when you come to stake out the curve on the ground. To forestall this, and to

help evaluate beforehand the perspective of the design, raise the paper plan horizontally to just short of eye level. In this position, turn the drawing slowly and make believe you are walking through the garden. This is an excellent way to test the aesthetic value of the lines you have drawn.

When you feel that you have reached a solution, analyze the problem from afar. Look to see whether the fencing has been used to give new dimensions or whether it has been used merely as a boundary enclosure. Test whether the lawn area and open and paved areas give a complimentary effect and ample area of use; and finally whether you have employed contrast in line, shape, and texture by balancing open areas and strong line with small shapes and pleasing textures.



A PEEK AT THE MAIL

Gentlemen: Is it possible to grow the Lady Banksia rose in this territory? I love it for its fragrance. I find your GREEN THUMB quite valuable to me in my gardening activities. I regret very much that I live so far away and cannot attend some of those garden tours I read about in your publication. I would really enjoy that.

Sincerely,

Mrs. A. F. Vorpohl
Yoder, Wyoming

To my knowledge it is not grown much in this region but would be worth a try.—Ed.

It's so comforting to know that your valuable advice is as near as my telephone. I'm looking forward to a grand flower garden next year. Many thanks from a new subscriber.

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Miss Americas are chosen for their attractiveness, grace, charm, and accomplishments. The new flower winners are even more strictly judged and evaluated. They must be homemakers too. They are thoroughly tested all season long in comparison with the best of their kind at 26 well chosen trial grounds in as many sections of the country, including southern Canada.

They must demonstrate their behavior in all temperature zones, in sand to clay soils, from the seacoast to the mountains, in wet and dry climates. An All-America Selection may be depended upon to do well wherever such flowers can be grown and petunias and phlox are good performers most everywhere. They come in a rainbow of colors for every performance and they are long season bloomers.

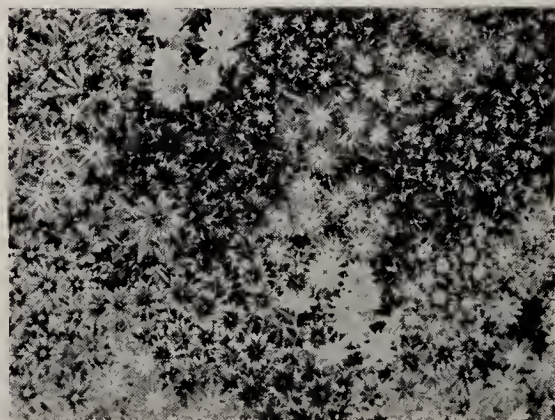
Glitters petunia is unique as the first and only red and white bicolor petunia. We've had violet and white, purple and white, even a recent crimson and white. However, Glitters is the most uniform in bicoloring and habit of low,



Red Satin Petunia



Glitters Petunia



Twinkle Phlox

compact bedding growth. And besides, it is a vivid scarlet red, starred or striped with pure white making the most colorful displays with the most desirable contrast in flower colors. Plant breeders have been striving for such a novelty for years. It was finally developed in Japan by the originator of the first all-double petunias.

Glitters is a true first generation hybrid, 10 to 12 inches high, of rounded form, and literally covered with 2½ to 3 inch blooms. It is of the free blooming, plain-petalled multifloral type, stands up well throughout the entire season, and blooms from spring to killing frosts for it is brim-full of hybrid vigor.

Red Satin brings a new conception of beauty and dependable satisfaction to the field. Of course it is a vigorous multiflora and a first generation or true hybrid. Its beautifully mounded plants of 12 to 15 inches are sturdy, compact, and covered with 2½ to 3 inch blooms all season long.

Red Satin supersedes all other red petunias — incredibly vivid with shining satiny scarlet-red flowers. Heat and sun fail to fade the marvelous color, nor do difficult growing conditions prevent it from blooming freely.

Red Satin is admirably suited for low beds of dazzling color, to create a

bright ribbon of color for borders and edgings, or for well-behaved, free-blooming pot plants. It is also grand for cutting.

Twinkle phlox is the first of its kind with twinkling stars of many colors and bicolors that blanket the 6 to 8 inch plants with bloom. Each petal is sharply star pointed and because it is on such low, compact plants, the clumps seem larger and give a much more colorful display than the previous tall or leggy type of about 15 inches. New colors also have been bred into this new and more useful type. Pink and salmon shades have been developed and added to the range of reds, lavenders, violets, purples, rose, cream, and white.

This new dwarf star phlox is one of the easiest grown annuals. Seed may be planted directly in its permanent location or started indoors. The well balanced mixture of colors of this Holland creation gives a delightful cheerfulness in bed, clump, band or edging. It is a bright surprise for the garden, an old-fashioned favorite brought right up to date in gay colors of winsome appeal.

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MEMORIAL FORESTS FOR POSTERITY

BY FRED R. JOHNSON

Some twenty years ago the Colorado Federation of Women's Clubs, the Colorado Federation of Garden Clubs, and the Colorado Chapters of the Daughters of the American Revolution, because of their interest in conservation, contributed funds which partially covered the cost of planting trees on denuded lands in the National Forests. Each memorial forest is marked by a rustic type sign, giving the name of the organization and the year of planting.

Better than 500 acres of planted trees are included in the Federated Women's Clubs Memorial Forests. One is located in the Pike National Forest along state highway 67 between Woodland Park and Deckers. Another such forest is near the ghost mining camp of Independence on state highway 82, in the White River National Forest. The largest is along U.S. 550 near Molas lake, south of Silverton in the San Juan National Forest, on what is known as the Lime Creek burn.

The DAR's have four memorial forests—one near Ward on state highway 160 in the Roosevelt National Forest. There are two in the Arapahoe Forest—one near the east side of Idaho Springs, the other on the west side of Berthoud Pass on U.S. 40. The fourth is near the old mining camp of Independence in the White River Forest.

The Colorado Federation of Garden Clubs has a 25-acre Ponderosa Pine memorial forest in the Pike Forest, along state highway 67, north of Woodland Park.

Early in October I had the pleasure of again seeing some of these plantings in company with Jay Higgins, who was chief of planting for the Forest Service in the Rocky Mountain Region when these trees were planted. Several

of Mr. Higgins' pictures show how beautifully these trees have grown.

Everywhere these plantings have been successful. The trees are five to ten feet high and in a number of places they have stopped erosion, such as was occurring on Trout creek, a stream that flows into the South Platte river and is on Denver's watershed. The Independence Pass area was cut over and burned in early day mining operations. The plantation of trees is greening up hillsides that have been barren for years. The same is true on the Lime Creek burn, where fire destroyed about 25,000 acres of forest in 1881.

In recent years Congress has appropriated very little money for tree planting on National Forests. The drought of the past five years has reduced the water supply of the Forest Service nursery near Monument so



Colorado Federation of Women's Club's Memorial Forest Plantation of Lodgepole Pine planted in 1938 near Ghost Town of Independence, Colorado.



Another view of Lodgepole Pine Plantation Memorial Forest near Independence, Colo.

that few trees have been raised. As a result, tree planting on Colorado's National Forests has about come to a halt.

This is regrettable, as the need for the protection of our mountain watersheds becomes more evident each year as the demand for water increases. The increase in population, the industrial growth of the state, and the need for larger supplies of water for domestic use and for the irrigation of agricultural crops will require more attention to the proper management of our mountain watersheds.

In recent years a question has been raised as to whether the grazing of domestic stock in high mountain forests is compatible with good land management. Some conservationists have been alarmed at the evidence of overgrazing, not only on the National Forests and on the public domain, but also on privately owned land.

On the other hand some stockmen have come to the conclusion that it is more profitable to graze cattle and sheep on irrigated pastures or on fields planted to field peas or other legumes, rather than to drive them many miles to rough mountain ranges where losses occur, to a greater or lesser degree, from coyotes, poison plants, or other causes. Evidence of this change in ranch management can be seen over



Photos courtesy U. S. Forest Service.

Memorial Forest Plantation of Lodgepole Pine on the Lime Creek Burn planted in 1941.

the state in the Gunnison and Arkansas river valleys and in the San Luis Valley.

Evidence of the effect of the economics of grazing and the more conservative management of National Forest ranges is seen in the following figures of livestock grazed in the National Forests of Colorado for three years, taken at random from Forest Service reports.

1924—314,700 cattle and horses, 977,955 sheep and goats, 4265 permits issued.

1948—173,100 cattle and horses, 655,700 sheep and goats, 2500 permits issued.

1955—148,280 cattle and horses, 545,000 sheep and goats, 2331 permits issued.

These figures give us reason to believe that as the years roll along the grazing of domestic stock in the National Forest will continue to decline.

The increasing number of big game hunters—112,000 licenses to hunt deer and 24,000 to hunt elk in 1955—is likely to result in greater pressure on the Forest Service to set aside more range land exclusively for big game animals. These hunters harvested a trifle over 70,000 deer and 7,000 elk in the 1955 hunting season. Evidently quite a few came home empty-handed.

As a rule, deer and elk are not hard

on mountain ranges. They eat more browse and plants that cattle, especially, do not eat. Except in limited areas, where there is too large a game population, they are not detrimental to young coniferous trees—so why not plant more trees which will increase the watershed protection value of our mountain forests. These trees will provide more timber for future industrial use—pulpwood, plastics, and lumber products—and proper harvesting will not hurt watershed values. It has been demonstrated that the scientific cutting of forests, with the resulting openings, will increase the yield of water. The Lake States Experiment Station reported some years ago that the average maximum percentage of run-off was 4.6% on forest test areas and 7.2% on natural pasture plots.

Closely related to this general theme is the situation in the plains section of the state. How much better it would have been if the natural range lands of eastern Colorado, which for centuries supported thousands of buffalos and, later, large herds of cattle, had been left in sod instead of being plowed up for wheat. A dust bowl developed there during the dry "thirties." This was temporarily stopped, but during World War II high prices for wheat resulted in the re-use of these worn out lands and the breaking up of more sod land. Favorable moisture conditions prevailed and for a number of years farmers made big money.

As other countries got back to normalcy following the war, over-production

of wheat became a serious problem in the U.S. Quotas were established and the battle between rigid and flexible price supports and other aspects of the farm problem became national and political issues.

Then, true to the pattern which tree ring studies have told for centuries, a drought developed in the western plains states. Eastern Colorado has had less than normal precipitation since 1954. The pattern is one of crop failures, dust storms, miserable people, and abandoned farms.

Now Congress has come through with a soil bank program. Thousands of acres have been taken out of cultivation and are being sowed to grass. It may take years to re-establish a sod cover. Let's hope that 20 years from now, sod will not again be broken for more grain crops. Instead, perhaps farmers and ranchers of that period will bring back herds of cattle such as were common on the plains 40 years ago.

So you see that the inspiration resulting from once again revisiting the beautiful memorial forests of these women's organizations, has started a chain of thought from trees to grazing cattle and sheep on the National Forests, to providing range for more big game animals, to watershed conservation, and to the proper land management of our eastern Colorado plains.

See the December, 1953, *Green Thumb* for the story of the Memorial Forest project in Colorado's National Forests.



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OAKS FROM ACORNS

Often a tree that is associated with some historical period or event acquires a local title more popular than its common specific name. This has been the case here in Denver, where a group of Burr Oaks have become known as the "Sam Brown Oaks." These tree pioneers have grown from acorns planted on the Sam Brown Ranch southwest of Denver in 1871. Now in their eighty-fifth year—the prime of their long life span, they have been admired and appreciated for many years. They became the subject of great public concern recently, when some of their number were destroyed by grading operations for a residential subdivision development. Fortunately, the attention of the developers has been called to the true value of these trees, and assurance has been given that those remaining will be spared if at all possible.

These same Burr Oaks have contributed much more to the Denver area than their own welcome presence on what was once a part of the treeless plains of Colorado. These "early settlers" have been producing crops of acorns for many years, and these tree seeds have been gathered and planted to further enhance the beauty of Denver and its surroundings. It is impossible to discover the fate of all of these acorns, but many have produced seedling trees now established throughout the city. Thanks to Sam Brown and his wife Sarah, the first oaks were planted and proven in eastern Colorado. The "children" of the original oaks as well as the surviving trees are ours to enjoy today.

A number of these acorns were planted in the park department nursery, and trees from this source have been planted in City Park, Washington Park, and along Forest Drive on the south side of the Platte River from Broadway to Bannock Street. This last planting is probably the most notable, for many



This remaining group of the Sam Brown Oaks and another like group will be spared by the developers of Centennial Acres. They are located about $\frac{1}{2}$ mile north of the Centennial Race Track.

thousands of Denverites traveling to or from the downtown business district drive past these trees each day.

More of these "children" can be found growing thriftily at the home of M. Walter Pesman, and a fine specimen over one foot in diameter is flourishing on the grounds of the Porter Hospital on South Downing Street.

We have enjoyed the oaks on the Brown Ranch for many years, and the descendants of these trees are now coming into their own. We must awake to the value of these durable and long-lived trees. It is up to the people of today to see that these young trees which have developed from the acorns of the pioneer "Sam Brown Oaks" are properly protected and cared for, so that, like their forebearers, they may contribute to the beauty of Denver.

—*Rocky Mountain Association of Landscape Architects*



MIDWESTERN SHADE TREE CONFERENCE

The 12th annual meeting of the Midwestern Chapter of the National Shade Tree Conference will be held February 13-14-15, 1957, in the Pfister Hotel, Milwaukee, Wisconsin. The purpose of the organization is to encourage the planting of more trees and ornamental shrubs, to raise the standards of tree care practices by dissemination of knowledge gained through laboratory research and field work, and to promote more friendly cooperation among those engaged in arboriculture. Membership is composed of commercial arborists, city foresters, park personnel, nurserymen, educators, research scientists and others interested in the propagation and care of trees and shrubs.

The convention is open to all who wish to attend. Registration of delegates will start at 8:30 a.m., Wednesday, February 13, and the first paper on the educational program will be presented at 11 a.m. An attendance of approximately 300 members and guests is expected.

The program is primarily directed to discussion of problems of concern to those who perform tree work in the midwest, but included also are topics of interest to arborists from all sections of the country. Following presentation of each paper there will be a period of discussion and questions. Additional opportunity for questions and discussion will be provided in the Plant Clinic session which will be held Friday morning. Various tools and supplies used in arboricultural work will be on display in the West Extension of the Fern Room in the Pfister Hotel throughout the convention, with representatives on hand to explain their uses.

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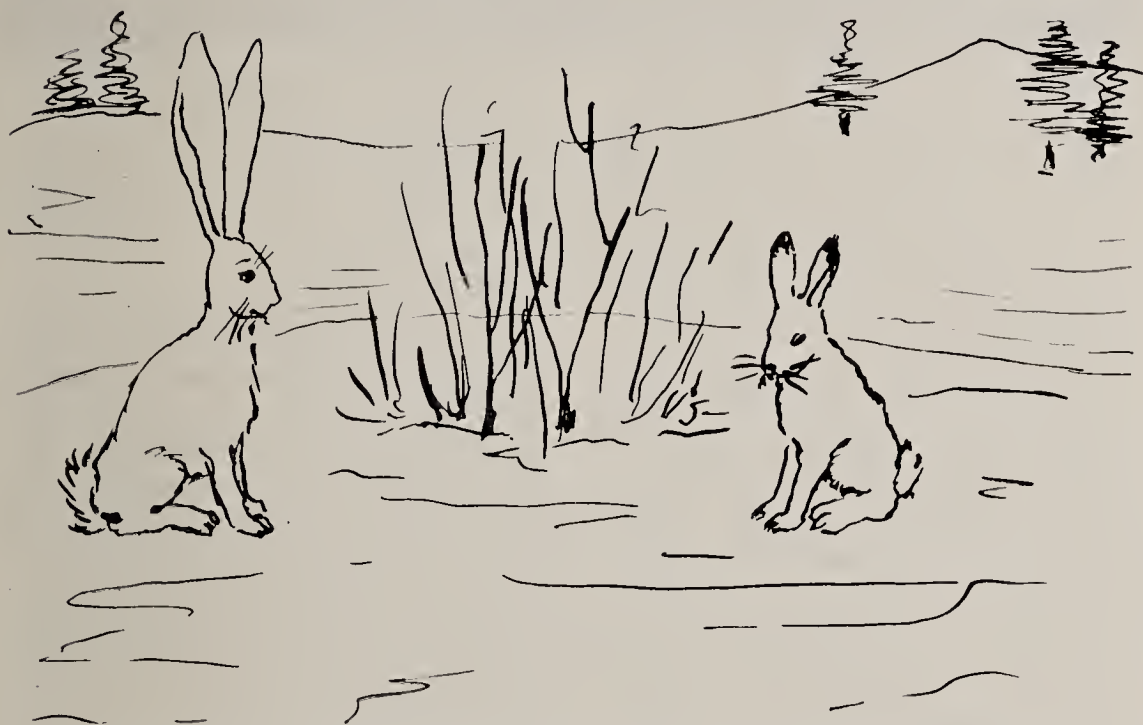
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JUNIOR GREEN THUMB



THREE CHEERS FOR SNOWSHOES

BY VIRGINIA SENA

Joe hopped up, up the mountain side. Spruce and pine trees grew high above him, so far up he could hardly see the blue sky between the branches. The farther up the mountain side he hopped, the deeper the snow became. He stopped and sat up on his hind legs. His nose twitched. The mountain air was sharp with the smell of pine trees. No sound could be heard.

Then Joe heard a soft thump, thump. What could it be? One of Joe's long rabbit ears twitched. He heard it again—thump, thump.

Quick as a jack rabbit can jump, Joe was behind a rock. All of him twitched; his padded feet, his long ears, his button nose, and his white tail. He watched and he sniffed. Then he heard the noise again. Thump. Thump.

THUMP. The thumping was getting closer. Still Joe could see no one.

Then he saw two black dots in the snow. Closer they came, and closer, until they looked like rabbit ears. Joe blinked and looked again. They WERE rabbit ears—white rabbit ears, trimmed with black edges, and they belonged to a small white rabbit. At least it looked like a rabbit, except for its big hind feet. No animal with such bear-sized hind feet could rightly call itself a rabbit.

Joe hopped out from his hiding place behind the rocks and right over to the strange rabbit.

"Hello," Joe said, stopping in front of the rabbit with big feet. "Aren't you Mac, the rabbit I met here last summer?"

"Why, yes, and you're Joe, the Jack Rabbit, aren't you?"

"I didn't know you at first, Mac. You look so different from last summer. You were gray then, and now you're all white. What ever in the world happened to your feet? They're so huge." Joe stared and stared at Mac's big hind feet.

"In the fall when the snow begins to cover the ground, the rabbits in my family turn white. Only the tips of our ears are black. The hair on our hind feet grows long to make snowshoe feet."

"Why do you need fancy winter clothes like these? Where I come from no rabbit would be seen in them."

"We aren't really rabbits," Mac answered, tossing his head. "People call us rabbits, but we are hares. We don't build our nests in burrows the way rabbits do. We build our nests on top of the ground in a tree stump or between the rocks. We snowshoe hares are born with fur and strong legs. We don't need to be hidden away in a burrow while we're babies the way you do."

"Wait a minute," Joe said loudly. "We jack rabbits don't need burrows, either. We're born with fur, too. The cottontail rabbits are the ones who nest in burrows."

"Then we are both really hares," said Mac.

"So we are," agreed Joe. "I still want to know why you wear fancy winter clothes. No HARE where I come from would be seen wearing snowshoes."

Mac answered, "I don't see how any hare can hop on snow without snowshoes, Joe."

"We use our brains, Mac. Jack rabbits can out-wit any dog or fox."

Suddenly Mac said, "Speaking of foxes, I smell one."

"A fox, huh? You just watch how I out-wit him, Mac." Joe bounded up the mountain side. He didn't notice that he was going into deeper snow. He looked for thick brush and rock piles, where he could hide. All he thought of was out-witting the fox and showing off in front of Mac.

Joe looked back to see if Mac was watching. He couldn't see Mac, but he saw the fox. The fox saw him, too. He was coming up the mountain side after Joe.

Joe jumped behind a tree. The snow was deep. The fox was getting closer. Joe circled the tree and headed for some brush, but his feet sank into the snow. He couldn't run fast enough. The fox saw where he was going. The snow got deeper and deeper. The fox came closer and closer. Joe changed his course to a rock pile, which was closer than the brush he had first headed for. The snow was too deep for him. The fox was gaining. Joe couldn't run fast enough in the deep snow to out-wit the fox. What was Joe going to do?

Suddenly Mac bounded by, almost under the fox's nose. The fox left Joe's trail and chased Mac. Joe sat still, shaking with fright from his narrow escape. He watched the snowshoe hare bound over the deep snow. He could really travel fast on his snowshoes. His feet didn't sink into the snow at all. Soon Mac and the fox disappeared up the mountain among the tall trees. The last Joe saw of them, Mac was far ahead of the fox.

After a while Mac came bounding back to Joe. He sat down next to Joe to catch his breath.

"Three cheers for snowshoes!" greeted Joe. "You can really travel on snow. I'm going back to the foothills where I can run fast enough to out-wit a fox. See you next summer."





BOTANICAL GARDENS OF THE MIDWEST

By ROBERT L. WOERNER

Director, Botanical Gardens Foundation

In considering the botanical gardens and arboreta of North America, we usually think of the Arnold Arboretum, the Brooklyn Botanic Garden, and other large eastern institutions. Some of us may be familiar with the extensive Morton Arboretum in Illinois or the large plant collection at the Missouri Botanic Garden in St. Louis. There are additional botanical gardens and arboreta in the midwestern states which are well worth a visit by any gardener. They may provide an interesting side trip to enjoy on a vacation or in the course of business travels.

NEBRASKA

Our neighboring state of Nebraska maintains a 63-acre arboretum at Arbor Lodge State Park near Nebraska City. Arbor Lodge was the home of J. Sterling Morton, founder of Arbor Day. This imposing mansion is open to the public, and many of the rooms are furnished with furniture originally used by the Morton family. Other rooms also have been set aside for interesting historical collections from early day Nebraska.

The main arboretum was laid out in 1903 by Frederick Law Olmstead. Related tree species are grouped together and are easily reached by a graveled path. Markers on the trees give interesting facts about the species or the individual tree in addition to the scientific and common names.

Although the park does not contain a large variety of woody plants, the specimens displayed are of historical interest such as some of the trees that were planted as early as 1868 by Mr. Morton. Others were planted by the Morton Family up to 1922, when the property was given to the state. Additional memorial trees have been planted since that time.

The mansion and grounds are maintained in excellent condition. Thousands of annual visitors from all over the world can attest to the beauty and interest found at Arbor Lodge State Park.

IOWA

The most interesting plant collection is at Waterwork Park in Des Moines. Here Mr. A. F. den Boer has assembled an extensive collection of crabapples which provide an excellent show of flowers in May. Again in September or early October this park is particularly noteworthy for its fruit display. Anyone interested in small flowering trees will find this an excellent collection in which to study the many sizes, shapes, and forms of these small trees of the genus *Malus*.

Two other plant collections are listed for Iowa, the Iowa State College Arboretum at Ames, and the Iowa Memorial Arboretum at McGregor.

MINNESOTA

For those who journey north to Min-

nesota, there is an interesting and unusual collection in Minneapolis. The Eloise Butler Wild Flower Garden in Theodore Wirth Park contains over 1000 varieties of wild flowers and plants native to the state. It provides an excellent opportunity to study indigenous plants in a small area.

The Lake City and the Underwood Arboretum, both at Lake City, and the Carlton College Arboretum at Northfield, are collections of woody trees and shrubs that are worth visiting.

WISCONSIN

Two well known collections are the University of Wisconsin Arboretum at Madison and the Botanical Gardens in Whitnall Park, Milwaukee. The Wychwood Arboretum is maintained at Lake Geneva by the University of Chicago and the state operates an arboretum at the experimental game and fur farm at Paynette.

The University of Wisconsin Arboretum features evergreens, woody trees and shrubs, woods, and wild flowers. Extensive studies have been conducted here to determine the factors affecting the wildflowers and grasses of the prairies. Over 700 species and varieties are represented in attractive, naturalistic plantings. The arboretum covers an area of 1140 acres including some fine tracts of native woodlands.

The Milwaukee County Park Commission has developed an outstanding botanical garden at Whitnall Park. Here an excellent combination of formal beds and naturalistic plantings has been used to demonstrate good plants and good planting. The garden covers an area of 450 acres featuring perennials, annuals, roses, evergreens, woody trees, and shrubs. Seasonal shows in the various plant collections are featured as an activity of the garden.

ILLINOIS

Within the city of Chicago, the Garfield Park Conservatory is an outstanding educational feature. This collection

of 5,000 species and varieties (largely exotics) in eight exhibition houses is used as material for shows and displays to increase the interest of the public which raises the conservatory above the level of merely a "plant museum" making it much more appealing to the visitor. The four major shows are Easter and Spring (azaleas), and Christmas and Mid-Winter (chrysanthemums).

The Morton Arboretum, west of Chicago at Lisle, was established in 1922 by Joy Morton, son of J. Sterling Morton. This arboretum of 1400 acres contains over 5,000 species and varieties of woody plants. Collections are grouped about small open meadows and well-planned drives carry visitors to all parts of the arboretum. Parking lots are placed throughout the area for those who wish to study the plant groups more closely. A special feature is the collection of 150 hedges and 100 groundcovers near the administration building. In the building, hourly orientation lectures are given for weekend visitors to increase their enjoyment of the facilities.

The Morton Arboretum is also noted for its fine nature recreation program. Although a visitor to the arboretum cannot participate in these classes, exhibits that are developed in these programs are on display in the Thornhill Building. In addition to the classes for children and adults, there is a fine system of nature trails for the use of school children under the guidance of their own teachers.

This arboretum is carefully maintained and the plants are well labeled. It is a plant collection you will not want to miss.

Other points of interest in Illinois include an arboretum at Bloomington, Lilacia Park in Lombard, Pilcher Arboretum at Joliet, and the University of Illinois Arboretum at Urbana.

MICHIGAN

The most interesting botanical gar-

den in Michigan is the Beal-Garfield garden at Michigan State University in East Lansing. Here the entire campus is being used as a plant collection. Trees, shrubs, and other plants are labeled for the education of the students and the general public. A small plant collection contains labeled representatives of the various plant families arranged systematically in rows for scientific study. An amazing number of plants have been assembled in this small area adjacent to the library of the university.

The Nichols Arboretum at Ann Arbor is another university sponsored garden featuring peonies, evergreens, woody trees and shrubs. Emphasis is placed on the exhibition of materials useful in landscaping and the demonstration of landscaping and planting composition.

The Slayton Arboretum owned by Hillsdale College at Hillsdale in south-central Michigan contains 1400 species and varieties of perennials, evergreens, woody trees and shrubs. This small arboretum specializes in crabapples and lilacs, making it particularly showy in May.

INDIANA

The Butler University Botanical Garden at Indianapolis is the outstanding plant collection in the state. Here in a 15 acre area are many fine trees and shrubs. A formal garden features a fine yew hedge paralleled by beds

of annuals and perennials. The garden is well maintained and the plants are clearly labeled for easy identification. The campus is also noteworthy for its fine architecture and landscaping.

MISSOURI

The famous Missouri Botanic Garden, popularly known as Shaw's Garden is located in St. Louis quite close to the downtown district. The conservatories at this garden are extensive and contain thousands of exotic species. One of the large houses is used for flower shows throughout the year. The plant collections outside the conservatories are interesting too and include a variety of plants and the waterlily display for which this garden is famous.

The arboretum for the botanic garden has been established at Gray Summit, west of the city. Here an area of 1600 acres has been developed for a collection of woody plants. Well planned auto roads make all parts of the arboretum accessible. Gray Summit is also the location of the Orchid Range, where a collection of 20,000 orchid plants has been assembled.

The above brief review of botanical gardens and arboretums is written in the hope that it will encourage the members of the Colorado Forestry and Horticulture Association to include some of these interesting places in their itinerary whenever they chance to travel about the midwest.

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THE MAIDENHAIR TREE

(GINKGO BILOBA)

This is a Maidenhair Tree, *Ginkgo biloba*, which reaches a height of 60 to 80 feet in China. It is growing on the Capitol grounds where it has been (to my personal knowledge), more than 40 years. Today it has a trunk of only 5 or 6 inches in diameter. It is one of the survivors of a collection of unusual trees on the Capitol grounds, which at one time were sources of information for botany classes. Today there are only a few unusual varieties left and it is remarkable that the Ginkgo has survived.

The tree was introduced in the United States at the beginning of the last century and is planted extensively in the east. It is propagated from seed, but, as far as I know, this one has never born any. It can also be propagated from scions grafted on seedlings and it is advisable to use only the male or staminate trees because of the unpleasant odor of its fruit.

S. R. DeBoer



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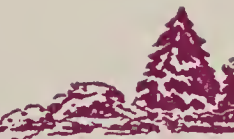
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The Green Thumb

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March, 1957

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The Green Thumb

COLORADO'S GARDEN MAGAZINE



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The Green Thumb

Vol. 14

MARCH, 1957

No. 2

Colorado Forestry and Horticulture Association

Organized in 1884



"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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MEMO

Calendar of Events

March 3-4 Lecture Program, "The Spell Of Ireland," John H. Furbay, Denver Museum of Natural History, Sunday Programs 2:30 to 4:30 p.m. Monday Programs 6:30 and 8:30 p.m.

March 6 The Editor's Birthday (an illegal holiday).

March 6 Botany Club meets the first Wednesday of each month 7:30 p.m. Horticulture House.

March 10-11 Lecture Program, "Monument Valley Adventure," Francis R. Line, Denver Museum of Natural History, Sunday Programs 2:30 and 4:30 p.m. Monday Programs 6:30 and 8:30 p.m.

March 13 Organic Garden Club meets the second Wednesday of each month 8:00 p.m. Horticulture House.

March 14 American Rose Society, meets the second Thursday of each month. Room 186. City and County Building. 8:00 p.m.

March 17 St. Patrick's Day.

March 17-18 Lecture Program, "North

To Adventure," Fred Machetanz, Denver Museum of Natural History, Sunday Programs 2:30 and 4:30 p.m. Monday Programs 6:30 and 8:30 p.m.

March 22 Nature on the Screen Series, "Between The Tides," Robert C. Hermes, Denver Museum of Natural History, 8:00 p.m.

March 24-25 Lecture Program "Two Tickets To Timbuctoo," Kenneth Richter, Denver Museum of Natural History, Sunday Programs 2:30 and 4:30 p.m. Monday Programs 6:30 and 8:30 p.m.

March 31 - April 1 Lecture Program, "The People Of Denmark And Greenland," Denver Museum of Natural History, Sunday Programs 2:30 and 4:30 p.m. Monday Programs 6:30 and 8:30 p.m.

"Fun With Flowers" discontinued until further notice.

Green Thumb Program 9:00 a.m. each Saturday, KLZ 560, on your Radio dial. Pat Gallavan, Horticulturist, with Dale Morgan.

The University Hills May Company is sponsoring six evening programs on gardening in cooperation with Herb Gundell, Denver County Agent. Pat Gallavan, your editor and horticulturist will participate in four of them. Home gardeners are invited to register in advance at the University store. Registration is limited to 200 so don't delay. Classes will be from 7:45 p.m. to 9:00 p.m. Mondays. Starts March 4.

WATCH THIS PAGE FOR NEWS OF OUR GARDEN FAIR.

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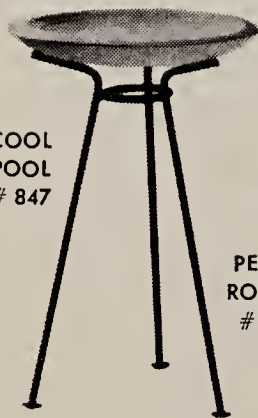
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ASSOCIATION NEWS

We want to thank you for the large turn out at our annual meeting. Over 230 of our members and friends attended. For those of you who were unable to attend, we would like to take this opportunity to introduce you to your new president, Kenneth Wilmore. Ken, as he is known to his friends and customers at Green Bowers Nurseries, has been a board member for a number of years, and has been chairman of the Plant Auction and the Educational Committees. A nurseryman by trade, Ken is interested in horticulture and its future in this area. By way of greeting, Ken asked us to pass on the following message:



Dear Members:

We are now starting a new year of operation for the Colorado Forestry and Horticulture Association with our spirits higher, and our horizons for accomplishment more ambitious, than at any other time in my recollection.

You have seen fit to elect me as your president for the coming year, and I accept, hoping that the next year will go into the records as our best in terms of goals reached.

You all must realize that this is an Association and not a one or two man operation. To make this year a successful undertaking, everyone must cooperate and lend a helping hand whenever called upon to do so—even if it is simply asking your next door neighbor to join the Association.

I especially want the homeowners of our new and under-developed housing areas to learn about the Association and to feel free to take advantage of the services we have to offer. These are the people who need our services most, and if we can help them with their planting and landscape problems in any way with lectures, or any other means at our disposal, we shall be more than happy to accommodate them.

Finally, I would like to hear all constructive criticism you may care to offer by simply writing Horticulture House addressed to me. These criticisms will help me immeasurably in the coming year.

Thank you again for your support and I hope that your faith in me will be well-deserved during the coming year.

Sincerely yours,
Ken Wilmore.

The citation below was presented to Mr. S. R. DeBoer at our annual banquet January 28th.



Mr. S. R. De Boer

Dreamer of great dreams, you came to your new land from an ancient culture, bringing with you a broad vision for the future of your adopted country-side.

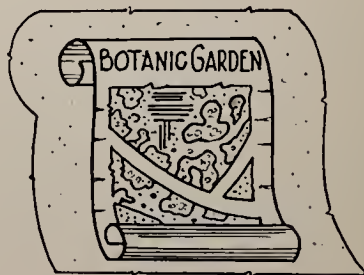
Author, nationally recognized Landscape Architect, City and Regional Planner, you pioneered in a field unfamiliar to this western country. The record of your achievements is indeed impressive, as we review the broad extent of your work in the entire Rocky Mountain area.

You have lived to see vacant spaces transformed into fine parks and to see the unshaded streets of a small city change, under your skilled hands, to well-planned boulevards, tree-lined and beautiful.

You have complemented and enlarged the use of our magnificent native plant material by the addition of hundreds of new species from far afield, but suited to our unusual climate.

Through years of thwarted effort and discouragement you never once relinquished your ultimate endeavor to establish a Botanic Garden in the Rocky Mountain Region. This—now a reality,—remains one of your greatest achievements.

The members of the Colorado Forestry and Horticulture Association salute you and bestow upon you this Award of Merit in recognition of your services to this community over a period of many years.





ARRANGEMENT OF THE MONTH

Harbingers of spring, daffodils always bring a welcome preview of the season into winter-close rooms. Mr. and Mrs. Ray Turnure used a container of white milk glass and then combined acacias with the daffodils. Graceful curves or lines may be achieved with the daffodil foliage by gently drawing the foliage between thumb and forefinger, thus shaping it to the desired pattern. The foliage of the acacia has the same silvery sheen as that of the daffodil but it has a contrasting shape and texture which makes it and its bloom good fillers.

—Photo by Mr. and Mrs. Ray Turnure

ROCKS

on

our

KNOB

Do you have a steep terrace, a problem grade between properties, or just an innate desire for a rock wall?

It's hard to say which came first at our place, but I'm afraid it was the last. Our first inward glow came while observing the dry stone wall base for the picket fence at the home of Mrs. L. V. and Ruth Woods in Bonnie Brae. The rock garden at the Bill Lucking home on West Quincy also kindled the spark. When George and Sue Kelly built their garden shop, the rock walls were so elegant and distinctive that rock walls and rock gardening seemed a must.

Many months ago we found a site slightly more than half an acre with a 20 per cent grade at the corner of Ridge and Windermere, south of Littleton. Our ambitions were: rock walls, a home small enough for two people to enjoy, a white pine, dwarf Alberta spruce, a garage in the basement, a small area with choice and borderline plants, many native plants, and due to the size of the area involved, some fairly good solutions for maintenance.

Our first gesture was to take the

BY BERNICE PETERSEN

Kellys to the site since the old slogan, "ask the man who owns one," seemed the answer to our question.

"Could we build a house here with rock walls and rock gardens to retain the steep slopes?"

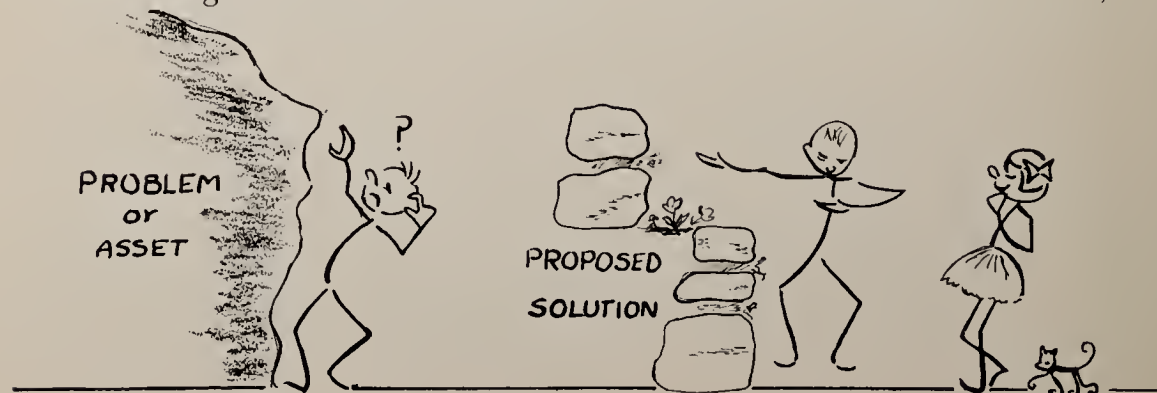
"Of course," they assured us. "We'll help you."

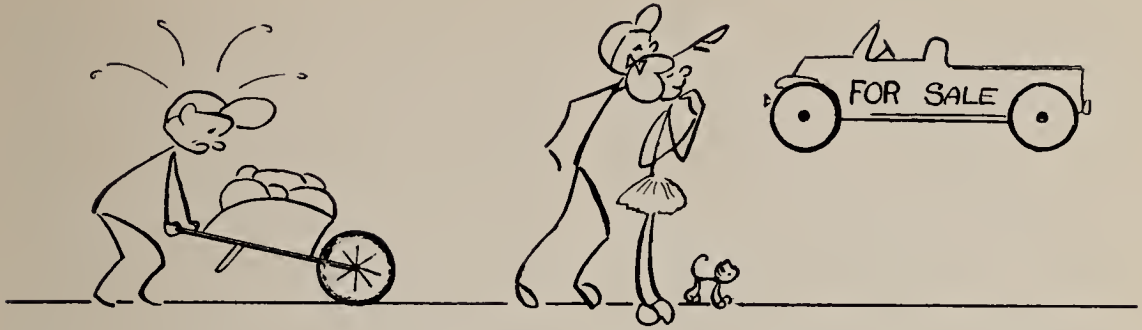
We plunged!

Our friend, Frank Chin, drew house plans with a heavy roof, wide overhang, sturdy balcony; all designed to nestle our abode into the hillside. Our amiable contractor permitted us to remove all refuse during the building process so that nothing would be buried for future grief.

For cheap transportation, a second car seemed a necessity. Due to the size and number of walls required, we decided a truck would be an economical investment. Large rocks were essential to keep the walls in scale. Furthermore, one large rock lays a lot of wall in one operation. Perhaps only one or two large rocks would suffice in your case, and the purchase of a truck would be unnecessary.

As soon as the contract was let, we





haunted the used truck lots for something capable of hauling rocks as well as us. A three-quarter ton pickup of 1950 vintage was our gem. By combing the local junk yards, Pete—Big Pete that is—found a rusted, manually-operated, wormgear winch available for a small fee. A hundred feet of cable with a running hook was ample. The winch, although slow but easier on the spine, was mounted near the cab on a home-made rack built from a Model-A Ford frame.

One or two bars made from a Ford drive shaft with a point on one end and a chisel point on the other, shaped by the village smithy, is a cheap and invaluable tool for raising, guiding, and laying rock. Essential equipment included three or more rollers of at least $\frac{3}{4}$ -inch pipe, a pair of 2 x 12 planks for portable ramps, and tough gloves. Everything was ready, everything but our muscles.

Since we are neither landscape authorities nor geologists, the following choice tidbits have been gleaned from books, magazines, and mainly George

Kelly. Rocks should be confined to one kind, never more than four. Collections are never acceptable for gardens unless you are a collector, not a gardener. Reddish sandstone seemed to blend best with the material in our house, but you'll find we "flubbed." Our few granite rocks are being planted out with antelope brush, cinqfoil, thimbleberry, and prostrate juniper. Now we can distinguish granite from sandstone and even yellow sandstone from red and grey. Discerning, eh?

Lichens appear on numerous species and have proved a study in themselves. You see, we are beginning to "dig" those rocks, as the Presley fans say. Of course, a student of "rock and roll" wouldn't be far afield in this project.

Walls may be laid in a naturalistic or "Central City" style, according to our worthy counselor. Naturalistic is preferable but much more difficult to execute. You must find rocks that can be reconstructed at home in the same pattern as found in nature. "Central City" is formal and definitely man-made, but not formal to the extent that



the rocks are cut. Square, or at least right-angled, rocks aren't too easy to find either, especially when you're seeking lichenized rock with little or no unlichenized edges on the exposed side.

Are you wondering where to find the rocks? Our standard retort is, "Would you ask a friend to reveal the location of his favorite fishing hole?"

Getting back to construction, when gathering large rocks or transporting lichenized rock, be sure to protect the lichen from other rocks or from the cable with a padding of burlap, scraps of wood, or boughs. Walls must be laid with a batter back of one to five; that is, for every five inches in height the wall should lean back toward the hill one inch (much the idea of clipping a hedge). Too, rocks should tilt back to encourage moisture to run down to the plants and to hold the soil. A good bulldozer operator can save numerous hours of digging and moving earth if you can convey your wishes to him. Dry walls to most people mean the popular substitute for plaster, it seems.

To continue, a dry wall should not exceed four feet in height. In our case an eight foot slope had to be retained, so we used two walls three feet high and one two-foot wall with beds between for fun in planting. At the present time, when approaching our plot from the south, the wall retaining the driveway and the three walls above, appear as one solid wall about 12 feet high. Careful planting should remedy the situation, we hope!

Use heavy rock for the base. Often one of the "lunkers" that looked like a beauty when you loaded it will be less conspicuous there. Next, add a thin layer of soil and humus thoroughly tamped, again a layer of rock, repeating until the desired height is reached. Select a combination of rocks that approximate the height of the wall; if two or three inches more height is needed,

this soil layer may be varied in thickness to help reach the desired level. Heavy, sturdy cap rocks with a good edge and top are essential. By placing groupings of small rocks alternating with one or two big rocks and an occasional overhang, interest and variety can be achieved. Each grouping or section necessitates a check for level, general contour or line, the relationship of one group to the next, with the strata appearing as it does in nature. If possible, lock each rock in place with the adjacent one.

Rocks with heavy lichens, deep erosion, or a gnarled quality are the "character" rocks and assure rugged beauty. Some resemble mushrooms, some have natural bird baths, others look like Thurber's dogs, crocodiles, tam-o'shanter (You see, it gets you!). Fitting the various combinations of rock together is more fascinating than any jig-saw puzzle. Small triangular rocks, flat thin edges, various odd shapes will help fill vacancies, although good plant pockets are essential.

Our two upper walls on the east are naturalistic, breaking into steps with a few scattered rocks holding the grade of the hill. The lower wall ("Central City"), circles and extends southwest to hold the patio and driveway levels. Both ramps were included to make lawn mower manipulation easier. (Think how helpful they'll be when we're maneuvering our wheelchairs!)

The top level or front garden, as the Kellys planned it, will be formal with flagstone in concrete and such plants as roses, fragrant snowball, Oregon grape, hawthorn, and Littleleaf Linden. Points farther distant from the house will have plants that are hardy and more drought resistant.

Wall plants which would have been better if planted at the time of construction, will be both native and cultivated, depending on their locations. Since all walls face south, plant endur-

ance and suitability will pose a problem.

The lower patio will be "moth-eaten" flagstone in grass. The pockmarks create interest and seem more harmonious with the adjoining rock walls.

To date, 27 truck loads of rock have built approximately 330 feet of wall, most of which is three feet high. Three more loads of wall rock plus five loads to scatter should complete the rock work. With six loads of flagstone hauled and at least four to go, we think

the end might be in sight (for us or the walls?).

Without the muscles, know-how, and enthusiasm of our experts, the Kellys, we would never have attempted a project of such scope. However, we do feel a sense of pride in knowing that we cranked, tugged, and hauled the rocks; we feel a sense of satisfaction in knowing that our big desire for a garden retained with rock walls will soon be fulfilled; and as we feel our backs we're assured that we really do have rocks on our knob!



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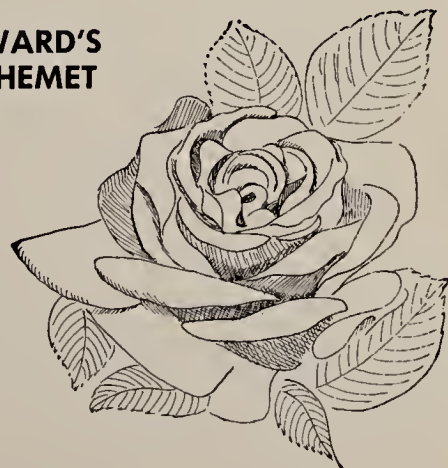
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Cacti Have Their Points

BY ALVIN L. CHAMBERS, PRESIDENT, COLORADO CACTOPHILES

The prairies, the high mountains, the parks, and the canyons and mesas of Colorado are covered with literally thousands of different kinds of plants. Of these thousands, less than thirty are cacti. In Colorado, one can find all sizes and shapes from the six-foot bush-like tree cactus (*Opuntia arborescens*, Engelm.) to the wee small ball cacti that hide in the short grasses on the plains. The former is well named. It has a central stem from which two or three joints spread to give rise to as many more joints, and so on until the plant looks like a weird bush whose stem and branches resemble a thick, braided, green rope. Every dimple has a cluster of silvery white spines each enclosed in a shiny straw-colored sheath. When in full bloom this cactus may have a hundred or more waxy rose-colored blossoms. These many-petaled flowers with showy white style and large purple stamens would put a rose to shame with their beauty.

The smaller cacti are also quite showy but in a less conspicuous way. A good example is one called Hen and Chickens cactus (*Echinocereus viridiflorus*, Engelm.) which is perhaps only an inch or two in diameter and two or three inches high. The stem is a dark rich green, the sides are grooved with each rib bearing a roach of spine clusters which contrast pleasantly—the green of the stem with the red to yellow spines. And to top it off, in the early spring it sends out several green flowers—yes, bright chartreuse flowers each of which may be almost as large as the plant producing it.

The other small cacti produce copious blooms in pink, ruby red, and royal

purple. *Pediocactus simpsonii*, (Engelm.) Britt. & Rose is a botanical anomaly. Its botanical name means “plain’s cactus” but its common name, “Mountain Cactus,” indicates the habitat where it is usually encountered. It is not unusual to find this 4 to 6-inch spine covered hemisphere with 8 to 10 flowers forming a pearly white, or sometimes a golden yellow tiara with the new butter-yellow growth in the center.

Many of these cacti are caespitose, that is, they form dense clumps. Among these are the green-flowered *Echinocereus viridiflorus* which form low dense mounds that are very colorful all year. Another, *E. roemerii*, (Muehlenpfordt) Dydb., is called the Beehive cactus. Its clumps are often up to 3 feet across and 12 inches high with 50 to 100 individual heads, each of which may produce flowers.

The *Opuntia*, Prickly Pear, has a spreading growth habit often covering many square feet with loosely spaced pads radiating from the center and re-rooting here and there where the pads touch the ground. Their large blossoms are quite showy in reds, yellow, and orange. Also the blossoms do not open simultaneously but a few at a time, thus prolonging the beauty of the plant.

But what’s an article on “weeds” doing in *The Green Thumb*? Don’t call them “weeds” to a member of the Colorado Cactophiles! A weed is “a plant growing where it is not wanted” and the cactus lovers *want* them. Once a month the Colorado Cactophiles meet in the home of a member to discuss their problems and joys connected with the growing of cactus

and try to learn a little more about these intriguing plants. The meetings consist of three parts: the more or less formal business portion, an instructional period conducted by one of the members, and finally a social period with color slides (usually a member's pictures of his cactus garden, of a trip, or of some other interesting subject) that winds up as a gabfest with refreshments. Summer meetings are generally in the form of field trips spent in prospecting for new varieties of cacti.

The use of cactus in landscape work has been sadly neglected in this region. Sandy spots or places hard to water are natural locations for cactus gardens; or places that are too narrow for most plants are well suited for the smaller cacti. Several of the members have very nice cactus gardens as a part of their landscaping, using special beds raised a few inches above the surrounding lawn to insure against too much water, even with the current restric-

tions. Unless you are a newcomer to this area, you cannot help but be painfully aware of the water shortage that has plagued us for several years. It is under these conditions (hot, dry, and sunny) that cacti do best. From here it is but a short step to a cactus garden that will help alleviate the problem of keeping a large lawn in shape. An established cactus garden will probably do nicely with only the water it receives naturally, even under the most adverse conditions. So you see even a moderate-sized cactus plot would lessen the area one has to cover in the allotted watering time. In addition, the silvery sheen of these spiny plants and the waxy beauty of the blossoms will furnish that "something different" touch for your garden.

Would you like to know more about these fascinating plants? Or perhaps you have a specific question we can answer for you. Get in touch through *The Green Thumb*.



Mr. and Mrs. Ray Turnure, who usually do the Arrangement of the Month for us, have offered to photograph anyone else's creations. Photography is Mr. Turnure's hobby so he has a room with the proper facilities set up just for such work. Call him today to have your flower arrangement photographed for *The Green Thumb*.



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CULTURE AND CARE OF TUBEROUS BEGONIAS

BY MICHAEL ULASKI

Tuberous begonias are grown in pots, boxes, baskets, and shaded beds. As for their culture, there has been much misleading advice given. Most people think begonias need complete shade, but light is essential as well as a cool spot for best performance. Contrary to popular opinion, they can stand most of the morning sun. Many failures come from too much shade. Avoid planting them under the heavy shade of trees and shrubs or around the roots of trees.

For plants intended for bedding, it is best to use tubers. Start the tubers the latter part of March or the first of April for early bloom. If started too early, they have a tendency to grow rank. A later planting makes for a more compact plant. Tubers that are one and a half to two inches in diameter are the best. There are several methods for starting them. Put them in small four inch pots or boxes on the green house bench, or directly in the outside bed. The soil should be composed of good loam, sharp sand, leafmold or peat with the temperature between 65 and 75 degrees. Tuberous begonias need a pH of 6.0 to 6.5. Guard against alkalinity. As previously stated, plants thrive in a soil which is fibrous, loamy, and well drained. Another good mixture is one third sandy loam, one third peat moss or leafmold, and one third good, well rotted cow manure. If manure is hard to get, bone-meal can be used at the rate of one fourth cup to each six inch pot full of mixture. It is always best to sterilize the soil to help eliminate weeds. When tubers are planted in pots, be sure there is good drainage material in the bottom. Plant the tubers one half inch deep in

a four inch pot and then shift later to a larger one if that is where you want to keep them, or put the established flowers in the bed, container and all.

They can also be put directly into the ground for the summer. A mulch of decomposed fibrous material applied on the surface of the bed will keep the soil from drying out. It is well to put in a small stake by each plant (at the time they are set out) for supporting the begonias later on when they are taller. If a stake is driven in after the plants have grown fairly large, there is danger of root injury. A feeding of liquid plant food every two or three weeks through the summer will keep them in robust bloom. Happily, these lovely flowers have few insect pests, but to be on the safe side, spray them with some all purpose spray.

It might be interesting to try raising tuberous begonias from seed. Good strains in different colors may be obtained from any reputable seed firm. Sow the seeds in shallow boxes or seed pans about the first of February. Be sure there is good drainage with a compost of equal parts of peat, leafmold, and a fourth charcoal. When the plants are large enough, thin them out to two inches in the same kind of soil as above and place them close to the glass but shaded from the bright sun. And they *must* have a moist atmosphere. When the begonias have grown close together, transfer them to three inch pots in good soil. From this stage on, the best soil to use is the first formula mentioned in this article. Put the plants in a northern exposure with all the air possible both night and day. On no account allow these plants to suffer from lack of water. They may be

stimulated by application of a liquid fertilizer and will be better their second year.

If planted in a bed outdoors, place them about a foot apart. Blend the colors for more pleasing results. A prolific hanging begonia known as Pendula Begonia, is excellent for hanging baskets, porch boxes, urns, or shady spots in a rock garden. It comes in pink, white, yellow, and red. A more lavish show will be obtained if the larger tubers, having many flowering branches, are used. Basket tubers are more sensitive to excess moisture than the standards, so do not over pot by using shallow containers. Baskets should be hung in a still, wind-free location. Basket tubers with only two branches in the beginning of the season should be pinched back when the first flower

bud appears. This makes a fuller basket. Water carefully until plants become well-rooted. Never allow them to dry out or be in need of fertilizer. More of these striking basket varieties should be used.

Some of the newer forms of standard begonias are the rose, a transition from the double camellia, another is the ruffled camellia with very large flowers, and the most spectacular is Rose Picotee. Some of these should be tried along with the standard varieties with which everyone is familiar.

A word of caution again, do not place your plants too early. The second week in June is about right. Also when buying your seed, tubers, or plants, get them from a reputable seed store or nursery for the best results.



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a selection of *Roses for Beginners*

BY CLYDE E. LEARNED

Based on polls made by the members of the American and Denver Rose Societies, and the results obtained during the past two years in the Denver Botanical Gardens in City Park as well as my own observations of many private gardens, the following recommendations are made regarding a selection of roses which will do well in Colorado. The Hybrid Teas that are popular, and do well in most gardens include:

		NATIONAL RATING
1. Peace	Yellow Blend	9.6
2. Crimson Glory	Dark Red	9.1
3. Charlotte Armstrong	Light Red	9.0
4. Chrysler Imperial	Dark Red	8.8
5. Tiffany	Pink Blend	8.7
6. Helen Traubel	Pink Blend	8.7
7. Mme. Henri Guillot	Red Blend	8.4
8. Confidence	Pink Blend	8.3
9. Rubaiyat	Light Red	8.2
10. Eclipse	Medium Yellow	8.1
11. Nocturne	Dark Red	8.1
12. First Love	Light Pink	8.0
13. Applause	Light Red	7.8
14. Mission Bells	Pink Blend	7.8
15. Show Girl	Medium Pink	7.6

Although there are many other Hybrid Tea roses which do well in Colorado, I believe the above is an excellent list from which to make a selection. I regret that no white Hybrid Tea appears to warrant inclusion in the top group of fifteen. If you must have a white rose, it is believed that Rex Anderson, Blanche Mallerin, or McGredy's Ivory are some of the best choices for Colorado.

During recent years a new crop of roses has been created, which has performed well in this region. These are the Grandifloras, which most of you know are a cross between a Hybrid Tea and a Floribunda. In general these roses are taller than the Hybrid Teas, and although the flowers on some varieties in this group do have a tendency to cluster, they have for the most part long, individual stems which are long enough for cutting and are excellent for exhibition purposes.

These tall growing bushes, which are getting very popular, make an excellent back drop for Hybrid Teas, Floribundas and other flowers.

Up to 1956, six roses had been introduced in this group, one of which, Queen Elizabeth, was picked in 1955 as having the necessary qualifications for an All America Rose Selection.

The following five Grandifloras are highly recommended for Colorado:

		NATIONAL RATING
1. Queen Elizabeth	Medium Pink	9.0
2. Carrousel	Dark Red	9.0
3. Montezuma	Orange Blend	Not rated as of 1956
4. Roundelay	Dark Red	Not rated as of 1956
5. Buccaneer	Dark Yellow	7.5

Next to the Hybrid Teas, the Floribundas are the most popular of the roses, and public interest in them appears to be gaining each year.

Floribundas that are popular and do well in Colorado are:

		NATIONAL RATING
1. Fashion	Pink Blend	8.9
2. Red Pinocchio	Dark Red	8.8
3. Frensham	Dark Red	8.6
4. Vogue	Pink Blend	8.2
5. Jiminy Cricket	Orange Blend	8.0
6. World's Fair	Dark Red	8.0
7. Poulson's Bedder	Light Pink	7.9
8. Independence	Medium Red	7.9
9. Baby Blaze	Medium Red	7.6
10. Else Poulson	Medium Pink	7.6

The three most popular climbers are the old reliables:

		NATIONAL RATING
1. Paul Scarlet	Medium Red	9.1
2. New Dawn	Light Pink	8.8
3. Blaze	Medium Red	8.1

Many new Climbing Hybrid Teas have been introduced in recent years, but most of them have not proved to be very frost hardy. Most Climbers appear to be limited to one burst of blooms in late May and June. Some varieties do have a few repeat blooms.

It is believed the above lists will assist beginners in making their initial selection of rose bushes. After a planting is made from this list and you have raised your first crop of beautiful roses, I seriously question whether you, with your additional experience and knowledge, will permit anyone the fun of choosing the additional roses you may select for your garden.

In this connection I suggest that all rose growers—both new and old—visit the Denver Botanical Gardens at City Park at least two or three times during the season to witness the gorgeous display of the Queen of Flowers. These visits will give you a wonderful opportunity to inspect and select the roses that appeal to you for your garden.

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For those of you who are not familiar with American Rose Society National ratings, it might be well to point out that a rose with a rating of ten would be considered a perfect rose. Incidentally, Peace, with a rating of 9.6, and Crimson Glory with 9.1 are the two top Hybrid Teas in America.

Roses with ratings of 9 or over are considered outstanding, from 8.0 to 8.9, excellent 7.0 to 7.9 good, 6.0 to 6.9 fair, and 5.0 to 5.9 are questionable. A rose with a rating below 5 is poor and would not be classed as a good buy.

To serve as a guide and to avoid as much confusion as possible in judging and rating roses the American Rose Society has established the following point system for the several elements on which it is believed a rose should be rated:

1. Form	25%
2. Color	25%
3. Substance	20%
4. Stems and Foliage	20%
5. Size	10%

When it comes to buying roses, it is well to buy from the old line nurseries which specialize in roses or from reliable local nurseries and seed stores, all of whom guarantee their roses and will replace them if they are planted according to directions and do not live. It is a mistake to buy bargain roses which are usually inferior plants or culls, or the left over dried out stock at the end of the season. The same is true of the so-called bench roses which are sold at a very cheap price by the hot houses at the end of the growing season.



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Smoothie cucumber takes the warts and spines off of this slicing favorite. Champion radish holds bright cherry-red color and crisp, solid, pungent flesh to the size of a silver dollar, if you wish to leave it in the garden that long. Black Beauty summer bush squash bears a week earlier and longer than other zucchini kinds to provide more of that desirable buttery flavor. Greencrop snapbean makes bigger beans quicker, along with extra food value and flavor.

We all know that *really* fresh vegetables may be had only from one's own garden. Fruit sugars begin turning to tasteless starch as soon as vegetables are pulled from the plant. They must be picked just in time to prepare and serve.

Housewives sometimes obtain and prepare fresh appearing vegetables within a couple or a few days of picking and they may taste a lot like vegetables — or, some of them would, if allowed to ripen on the plant instead of being picked green.

The point to emphasize is that home gardeners only may have really fresh

vegetables, and they should plant the sweetest, tenderest, most nutritious varieties if they are to take full advantage of their fortune. There's a world of difference.

The new 1947 All-America winners are especially home garden varieties. Local market gardeners may develop a high class reputation with them.

Most all gardeners plant radishes, the quickest vegetable to use from the garden. Three weeks after planting they are usually ready to use. A previous winner, Cherry Belle, is probably the most popular because it holds its bright red color and solid flesh for a long time. But it is of very small size.

Champion radish now brings us the same bright cherry-red skin and solid, crystal white interior. On top of that, we can begin pulling it when small or let it grow to silver dollar size several weeks later. It holds for a long time without getting dull or pithy. This saves planting in sequence in order to have radishes all season long. The bright red roots of Champion radish are globe shaped, slightly pungent, and grand for appetizers and salads.

Black Beauty squash is a honey. Of bush type, with single erect stems, it takes up but little garden space—about three feet each way. It starts bearing a week earlier than others of its kind



Champion Radish

and simply keeps on bearing. The more you pick the more it bears. A few plants will supply a sizeable family over a long season.

This kind of zucchini, an Italian marrow squash, is a buttery summer delicacy, blackish green in dark skin color, straight cylindrical, slightly tapered at the stem end. The flesh is creamy white. Zucchini is becoming terrifically popular because of its many ways of preparation. Black Beauty may be used from the size of a dill pickle to a foot long and still remain tender. Even people who have not particularly cared for squash seem to relish the tender, rich and buttery delight of Black Beauty.

Greencrop bush snapbean is a vigorous two feet tall grower. Its special merit is early production along with longer, wider, very straight, rather flat-

tened pods of better quality and flavor than comparable early sorts. Its pods are stringless, less fibrous, with brittle flesh of darker green skin and interior color, and it remains in condition longer and has heavier cropping than, Bountiful and Plentiful. It also has the advantage of white seeds at maturity. It does concentrate its set of pods, for quick and easy picking, rather than stringing production over a longer period. So, it is wise to make several small plantings, about 10 days apart, or follow with later varieties like Seminole and Topcrop.

Smoothie cucumber, we save to mention last. It is a unique novelty and your opinion is needed. It makes a handsome fruit, cylindrical in shape and of the popular eight-inch length. Its skin color is a superb, long lasting, rich green which even slightly pene-



Black Beauty Squash

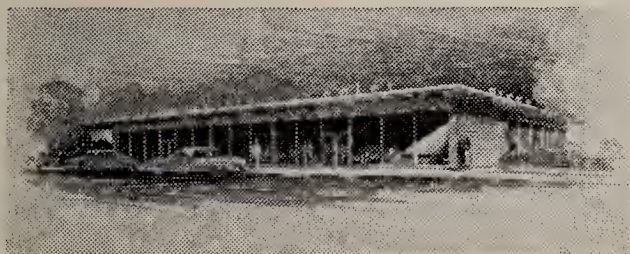


Greencrop Snapbean

trates into the crisp white flesh. The flavor is good and its prolific yield ranks with the best. But here's its outstanding merit.

Smoothie is without warts and spines. The skin is silky smooth; a pleasure to pick and to handle. Without warts, there is much less waste in peeling. Slices, with the very slight greenish tingle beneath the skin, are more attractive in salads and make more perfect discs. Being accustomed to warts and spines, a rough prickly surface, will gardeners appreciate a satiny smooth cucumber? We need to know how well you are pleased.

Seeds of these new All-America vegetables should be available through any up-to-date seed firm or dealer. Insist on them by variety name but order them early. Seed stocks are not large during this first year of introduction and are usually sold out by main planting time.



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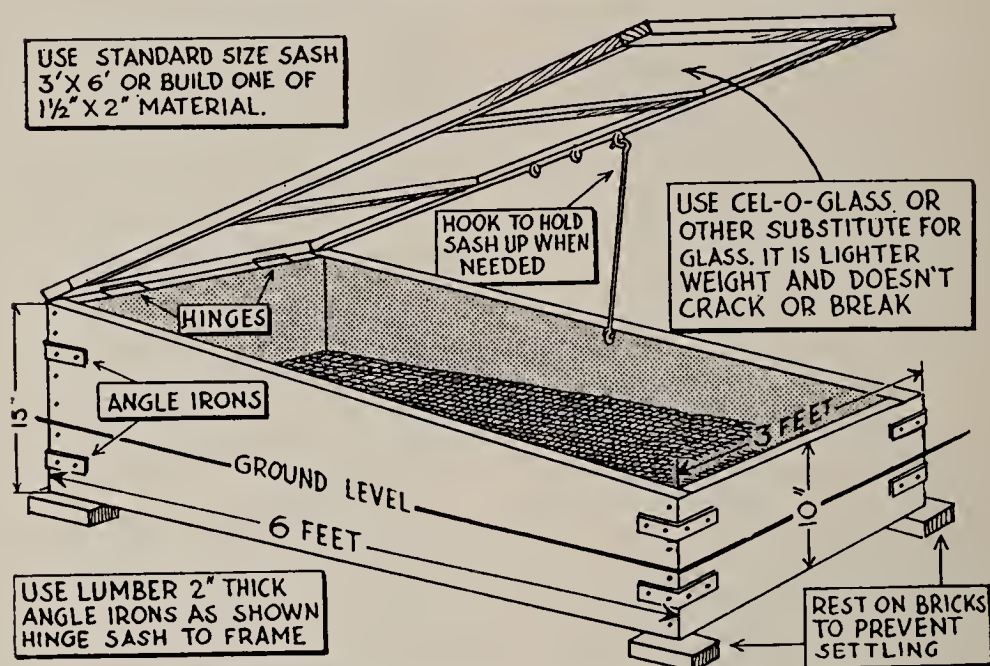
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COLD FRAME IS WARM BED FOR EARLY SEASON SEEDS



Follow this diagram in constructing cold frame.

One of man's earliest devices for protecting seeds and young plants from the destruction of cold weather is still doing a topflight job—with modern refinements.

It is the cold frame—a wooden, glass-topped structure in which seeds can get an early start in growing, eight weeks before frost disappears and outdoor gardens become safe.

The ancestor of the cold frame was nothing more elaborate than a pit in the ground. Primitive gardeners noticed, thousands of years ago, that plants flourished in pits, where they had protection from cold weather. The pits became a standard part of ancient gardening and are even used in some temperate climates today.

The cold frame is easily and inexpensively built. Using the sun's heat it sometimes produces temperatures up to 100 degrees.

The accompanying diagram shows a small cold frame made to fit the standard 3 by 6 foot sash. It can be altered, however, to fit a sash of any

convenient size. The sash covering does not, necessarily, have to be glass. Any glass substitute will serve to admit the sun's rays.

A cold frame should always slope toward the south in order to have uninterrupted sunshine. It can be made of 1-inch, or thicker, rot-resisting lumber, such as cypress or white pine.

Use the above illustration as a working plan for constructing the frame. When you are ready to put it to use, dig a shallow pit which will permit the frame to fall about four feet below the level of the earth. Then pile soil around the outside, tamping it so that no drafts can enter. The soil should be banked against the frame several inches all around. As a final step, throw enough soil inside the frame to raise its floor to the level of the ground outside.

Seeds sowed in a frame are generally placed directly in the soil, but to make transplanting easier, they can also be sowed in flats or seed boxes.

—National Garden Bureau.

WEBBER'S BOTANICAL RESERVE

By MRS. MILTON J. WEBBER

With an innate love for outdoor life, the opportunity to acquire a few acres of good soil with dependable water, and a fragmentary nursery stock, Milton J. Webber accepted the challenge of starting a nursery. Thus began a lifelong interest and some forty odd years of experimenting.

At that time there was a great lack of diversity in woody plants grown in this area—a condition which naturally lessened interest in horticulture. Cognizant of this, Mr. Webber's orders for merchandise usually included a few items not in general use locally. Little difficulty was experienced in establishing these strangers in their new home, and so the collection grew.

Almost any woody plant providing good autumn color was favored. Oaks, maples, lindens, hawthorns, buckeyes, viburnums, dogwoods, spireas—each in turn provides a glow of color. The berries shrubs and trees make the place a rendezvous for birds.

Speaking of autumn color, Mr. Webber never overlooked the foliage of the peonies which is at its best in the fall.

Some native plants from our nearby mountains, including the evergreens bordering the drive and surrounding the house, were collected and have added not a little interest.

It was never considered advisable to dispose of all of any variety which had been found acceptable, so many of the original specimens remain, and Nature, by her infallible methods, has increased their number.

Lilacs proved fascinating, and they remain in variety and profusion.

In the first season, attracted by the beauty of a few peonies blooming along the path, Mr. Webber moved them to a more favorable location, and each year until it became noteworthy, a few

choice varieties were added to make a colorful collection.

There was no limit to interest in plant life and space was always found for perennials of special merit.

Between seasons Mr. Webber found time to plant and construct the residence and supplementary buildings.

Then in 1949, to honor Mr. Webber's efforts toward promoting interest in horticulture, the Webber Nursery, known as Broadview, was designated a Colorado Botanical Reserve, and on October 16 of that year, a dedicatory service was held, attended by representatives of the Colorado Forestry and Horticulture Association and many of the state's garden clubs.

Ed. note: Why was nothing else done with this reserve?

BIOGRAPHY:

Mr. Webber was born in Illinois, a member of a family of six children (one daughter and five sons) most carefully reared by Methodist parents, at mining which they always respected. As a result, Mr. Webber was an excellent bible student.

Theirs was a music loving family and the children were schooled from early childhood in the best of it. They all sang and played some musical instrument.

After coming to Colorado, the boys joined in the music activities of the city during their leisure hours, singing in various churches over a long period of years.

Mr. Webber's lifelong reading habits, his varied interests, his retentive memory, and his freedom in conversation made him a most enjoyable companion in his home. Politically Mr. Webber's first interest was for prohibition. His was a full life, well-lived.

Junior Green Thumb



THE NEAR SIGHTED ROBIN

BY VIRGINIA SENA

Should Mr. Robin Redbreast wear glasses? He may be nearsighted for he cocks his head from side to side, looking for worms. His eyes bulge far out. Perhaps he can't see well. Or, would he be cocking his head to listen for worms?

Jack watched his pet robin dig worms. He couldn't tell whether Hoppy, the robin, looked or listened for worms. Jack had found the baby bird hopping and flopping on the lawn. The twelve year old boy climbed all the trees in the yard, hoping to find the nest. The clumsy little bird was too young to leave it. But Jack couldn't find any nest, and Hoppy needed food. The little bird opened his beak wide and squawked. Jack dug worms and fed Hoppy. The young robin grew to know Jack and soon was tame. In a week Hoppy dug his own worms. One day

Jack crouched over Hoppy, watching the bird dig. Hoppy cocked his head from side to side. Jack couldn't see a worm anywhere but suddenly, quick as a flash, the robin pecked the ground. Up he came with a long earthworm. Hoppy didn't eat the worm. Instead, he laid it on the ground and looked for another one. He found one and laid it on the ground, too. Then he pecked the ground again, found a third worm and ate it. Jack was sure Hoppy was trying to show how he hunted them. Since Hoppy couldn't talk, Jack didn't know if the robin saw or heard the worms.

Soon the robins will return. Let's watch them as they arrive from the Southern states. The birds fly in large crowds. The males come back first. On a cold spring day when snow cover still

lies in the shadows, one hears "Chirrup, Chirrup" as Mr. Redbreast bravely announces his appearance.

Mr. Robin belongs to a large bird family, the thrushes. The New England colonists named this redbreasted thrush "robin," because he looked like the European robin. Our robin has also been called American Fieldfare, Redbreasted Thrush, Fieldfare of Carolina, American Redbreast, and Migratory Thrush.

But no matter what we call him, he always returns in the spring. Two weeks later the female robin arrives. The birds pair off and go house hunting. Soon Mr. and Mrs. Robin find a nest site they like. It may be on a fence post, a window ledge, or even a statue.

Years ago when our country was still mostly forest and prairie, robins built their nests in forest trees. Now the nests are almost any place. Because of this ability to fit their nesting to farm, field, or factory, the robins are increasing. Birds that won't nest outside of the forests are disappearing as cities replace the woods.

No matter where Mrs. Robin decides to build her nest, she manages to find twigs or sticks. The busy bird flies to and from her nesting site, carrying and building. Mr. Robin stays nearby but doesn't help carry twigs. He probably doesn't know the best kind for nest building, anyway. Instead, he sings to Mrs. Robin and chases away strange birds.

After the twigs are piled in place, Mrs. Robin carries little balls of mud for plastering the inside of the nest. Her beak, her feet, and her breast are her tools. She places a ball of mud in the center of the nest floor, spreads the mud with her feet, then smooths the walls with her breast. That is why her breast is so dull and muddy during the building.

The nest is finished in two days. Next Mr. and Mrs. Robin find a pool

or bird bath, and Mrs. Robin is bright and clean again. For two days they enjoy splashing in the water and hunting worms while the nest plaster dries.

Then Mrs. Robin settles down to egg laying. Three days later the nest holds four pale blue eggs. For two weeks Mrs. Robin stays at home, keeping the eggs warm. She leaves only long enough for a quick meal now and then. Mr. Robin is nearby, still singing and chasing away unwelcome birds.

After the two weeks three baby robins hatch. They are pink and scrawny, with no feathers. They are mostly beak, which is always open and squawking for food. Mr. and Mrs. Robin are both busy catching worms for their hungry family. Young robins eat four times their own weight each day. Stretched out end to end, these worms would measure sixteen feet. That much food for each young robin makes them big enough to leave the nest when about eleven days old. Their father goes with them to teach them how to hunt for the worms and bugs.

Then Mother Robin housecleans the nest. She lays more eggs and raises another brood of young robins. If the warm weather lasts long enough, she may even have two more broods. Each time, soon as the babies leave the nest, Father takes charge. The last brood Mother joins too.

After the ground is frozen, worm hunting is hard. Mr. and Mrs. Robin, their two or three grown up broods and other neighborhood robin families, fly away. They are bound southward in search of a land warm enough for good worm hunting. They stay in the South until the robin crowds get too noisy. The longing for a home and quiet lures them northward again.

Next time you see one of these newcomers, watch him. See how he cocks his head from side to side as he hunts a worm. Is he looking or is he listening?



A DOZEN NOTEWORTHY NATIVES

When selecting plants for Colorado Gardens, it might be well to consider some of the species that are native to the state. Such plants have proven to be perfectly hardy. In some cases, they have shown their ability to exist on dry, sunny slopes and on alkaline soils.

Of the 400 species and varieties of native woody plants, many will prove of value for landscaping, particularly in the more difficult areas of the state, where cold, short growing seasons, lack of moisture, or poor soil limit the use of the more uncommonly grown ornamentals. One of the chief functions of the Denver Botanic Gardens will be to cultivate these plants. Comparative records will be kept, and the plants will be introduced into the local trade if they prove worthy. The collection of native plants in the wild by the home gardener is seldom desirable, since the mortality rate is high. After suitable testing, stocks of these plants will be made available to nurseries, so that eventually stock will be on the retail market for home landscaping. This stock will be root-pruned and transplanted, and will insure the successful establishment of the plants.

The native plants listed below have been recommended by nationally recognized authorities for landscaping. Some can be purchased from nurseries (although it will require a nationwide search in a few cases), or they can be grown from cuttings or seed as indicated:

Amorpha canescens, Leadplant Amor-

pha. 4'. This compound-leaved shrub has clusters of blue flowers in July which have contrasting orange stamens. Its particular merit lies in its downy gray foliage which makes an interesting contrast in the shrub or perennial border. It does well in poor, dry soil, since it is a native of the prairies. It can be propagated readily from seed.

Cornus stolonifera, Redosier Dogwood. 6'. This familiar shrub is available in most nurseries and needs no introduction. Although it likes moist conditions, it will grow in any soil. It is valuable as a colorful winter accent for the shrub border, since its red stems are showy when the foliage is off the plant.

Rhus glabra, Smooth Sumac. 15'. This rather coarse large shrub or small tree is not suitable for refined plantings or small properties, but makes an excellent bank cover. It is not particular as to soil, doing well on dry barren sites. It produces large quantities of showy red fruits, and its foliage turns a welcome red in the fall. It can be propagated by seed, which is sown as soon as ripe.

Rubus deliciosus, Boulder Raspberry. 6'. This native plant is one of the best of the raspberries for flowers. In contrast to some of the other plants listed here, this plant will do better with a more moist soil and some shade. Its white flowers are over an inch in diameter and occur in May. It is a graceful shrub and worthy of much wider use. Propagated by suckers.

Sambucus caerulea, Blueberry Elder. 20'. This large shrub has no place on the small homesite, but where space permits its use, it will be valuable for its flowers in large flat clusters in June. The abundant blue-black fruits are covered with a whitish "bloom" which gives them a blue appearance. These showy fruits add ornamental value in late summer.

Sambucus pubens, Scarlet Elder. 10'. The flowers of this species appear in May in pyramidal clusters 5" high. The showy scarlet fruits appear earlier than those of the Blueberry Elder. Both elders can be propagated by seed and hardwood cuttings.

Shepherdia canadensis, Russet Buffalo-berry. 7'. Although this close relative of the Common Russianolive is somewhat straggly in growth habit, its attractive gray-green foliage and red fruits make it an attractive shrub for dry areas. Being very hardy, it will grow in the coldest parts of the state. It grows readily from stratified seed.

Symphoricarpos orbiculatus, Indian-currant Coralberry. 3'. This small, spreading shrub is tolerant of shade, alkaline soils, and will grow well on steep banks. The purple-red berries of the plant are very attractive. It can be grown from seeds and cuttings.

The following plants are of particular value for the dry plains areas:

Chrysothamnus (nauseous) graveolens. Greenplume Rabbitbrush. 5'. This plant requires a sunny position in a well-drained alkaline soil to produce its showy, goldenrod-like flowers. This shrub is attractive in early fall with its feathery fruiting heads or plumes. Its flowers are 1¼" in diameter and occur in May. Apacheplume requires an open, sunny location and an almost dry site. Propagated by seed.

Fendlera rupicola, Cliff Fenderbush. 6'. This is another plant that requires full sun and a hot, well-drained site for its best performance. It makes an attractive shrub for planting under these trying conditions. Its solitary, white or pinkish flowers are borne in May or June and are quite ornamental. Propagated by seed or greenwood cuttings. Good on rocky slopes.

Artemesia frigida, Fringed Sagebrush. 1½'. One of our native sagebrushes, this low plant is valued in rockeries for its silvery, pubescent foliage. It has small yellow flowers in August. Thrives in poor, dry soil. Propagated by division.

The above list does not include all of the native plants which have ornamental value (see previous Green Thumb articles). It merely points out some of those with exceptional merit, and which should be made available to the people of Colorado.



"In potage without herbs there is neither goodness nor nourishment."

—The Herbarist.

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“VALUES”

WRITTEN BY JULIA JANE SILVERSTEIN

FOR THE ROCKY MOUNTAIN ASSOC.
OF LANDSCAPE ARCHITECTS



If you could exchange a well placed beautiful tree for a man's new suit of clothes for \$50.00 to \$100.00, would you? Would milady's gown of the latest fashion, purchased for \$200.00 be considered of equal value to a specimen tree? The gentleman's suit is worn out in a year or two and the gown is out of style next season, while the tree continues in good taste and usefulness for 30 more years; nor has one tired of its stimulating seasonal decorations year after year.

It would seem that most of us do not hesitate to have a chair re-covered or to get new draperies or to have an interior of a house redesigned for the sum required—but so often to purchase *ideas* seems difficult. Does one always have to feel or see an object to think he receives full value in exchange for a fee?

What about the *idea* back of a well planned garden, landscape development, shopping center, city plan or highway? Isn't it of value to you to have had the land planned and organized toward comfort, enjoyment, and safety; it is most certainly of more economic benefit than haphazard growth.

Now, perhaps, that we have established the soundness of first purchasing a good plan (which is an *idea* on paper), the construction of the *idea* can go forward as quickly or as gradually as the budget permits.

Have fun searching for the materials that will develop the picture! Here again is that difficult hurdle—spending money for a living *idea*. All right—just what has gone into the development of this fine specimen tree? Someone has loved it enough to water, feed, prune, spray, and cultivate it to help it grow into a handsome plant, fine enough for you to enjoy in your surroundings—yes, and it has taken years! Is it worth a fur scarf, a new hat, another car, a trip? A properly planned and planted living area lasts many years longer than any of these.

Give a new planting from 3 to 5 years to look as though it belonged and enjoy its growing toward the completed picture. This picture may screen an unsightly view, or give protection from a distracting intrusion. A tree properly placed invites you to sit under its protective shade among its lovely shadow patterns. It even gives interesting tracery against a winter sky. There is nothing static about these living ideas—thank goodness—that's the joy of them.

With this proper land planning, the value of your property has increased and this will hasten its saleability. Has your wardrobe or your house interior increased in value and joy during this longevity, or have you replaced many items?

What is your sense of values?

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WHAT'S NEW

1957 GUIDE FOR BUYING ROSES READY

America's favorite "Guide For Buying Roses" is now being distributed to rose-loving gardeners throughout the country.

Each year, thousands of amateur and professional floriculturalists use this pamphlet in selecting the plants they want for spring and fall planting.

The American Rose Society's members rate the performance of new roses which they have grown in their own garden. The guide contains the names, ratings, height, degree of fragrance and color of all these roses which receive fair to outstanding recognition (scale of 6.5 to a perfect 10.0). As an extra service, the society will furnish upon request the names and addresses of nurseries who stock any of the varieties listed.

Chrysler Imperial, Charlotte Armstrong and Peace Hybrid Tea roses maintain their outstanding (9.0-10.0) ratings for the fifth consecutive year. Golden Wings, another outstanding Hybrid Tea, appears at the top of the list for the second consecutive year. Betty Prior has led the Floribunda rose class for three years, and the new Spartan makes an initial outstanding showing. Paul's Scarlet Climber heads its group for the fourth consecutive year.

Write to the American Rose Society, 4048 Roselea Place, Columbus 14, Ohio, for your free copy of this outstanding publication.

SKIERS AND MOUNTAIN LOVERS ATTENTION!

The Denver and Rio Grande is now offering a weekend package trip to Glenwood Springs for only \$26.00 for skiers or \$21.00 for non-skiers. This includes a round trip ticket, four meals (2 breakfasts & 2 dinners), a choice of any one of 10 participating lodges or motels, and access to the many diverse recreation facilities. For skiers, the \$26.00 also includes unlimited use of ski tows. Leave Denver Friday evenings on The Prospector at 5:55 p.m. and arrive in Glenwood Springs at 11:19 p.m. the same evening. Return, Sunday afternoon at 5:15. Arrive Denver 11:00 p.m. These trips have been so popular that tickets should be purchased in advance, uptown, at 1531 Stout. Although not included in the above prices, there are two buses a day for side trips to Aspen. These have been arranged to connect with the arrival and departure schedule of the Denver and Rio Grande. Here is an opportunity to enjoy unparalleled winter scenery without the worry of dangerous, icy roads.



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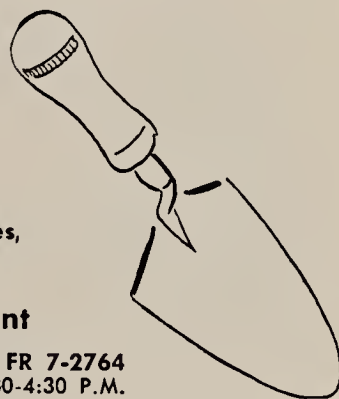
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Seasonal Suggestions

March is a frivolous month when hopes for a good case of spring fever are often smashed by the return of deep winter. It is also a month of strong and steady winds, and a time when a splash of color appears here and there on the warm south side of homes as crocuses pop forth. It's a difficult time for suggestions but to be on the safe side, here are a few that can be accomplished without too much trouble.

If you are planning a new yard or garden or if you are thinking about making construction changes in an old garden, now is the time to put those plans on paper. Crystalize all your thinking by working out the complete plan on paper first. It's so much easier to change things with an eraser. Rock walls, fences, patios, walks, pools, and the like are all things that can be constructed and gotten out of the way during March, leaving you free to plant to your heart's content during April and May. Of course, if you have the ambition and stamina of Bernice Petersen (see page 46), such a project might take a bit longer. As soon as the frost leaves the ground, and it usually does in March, you can begin soil preparation for new lawns and flower beds. Dig in plenty of humus. Whether it is manure, peat moss, or leafmold, is immaterial, just work it in and let it lie fallow till planting time.

Beware of the door to door topsoil and fertilizer peddler, especially if you don't know a load of manure from a load of hay. There are plenty of reliable dealers handy, but if you're not sure, check with the Better Business Bureau or Horticulture House. This same warning goes without saying for

door to door nursery stock salesmen representing out of town and out of state nurseries.

Transplanting of most deciduous shrubs, trees, and evergreens can begin as soon as the ground is workable. Spend a little extra time in preparing the soil for these plantings. Dig a hole twice the size you need and mix in 25% to 40% peat moss with the soil used for back fill.

If you are one of those people who gets a burning desire to manicure the lawn with a heavy rake the first time the temperature reaches 75 degrees—do a few bending over exercises instead by picking up the larger bits of debris such as the bones the dog "drug in" and miscellaneous windblown papers.

I got it straight from the old sod—St. Patrick's Day is the time to plant your sweet peas. Plant them about 3 inches deep in a well prepared bed.

Check your lilacs, elms, and evergreens for scale insects. Dormant spraying is the most effective answer to this problem and is best when applied at this time of year. So if you find insect scale on your trees and shrubs, call your arborist and arrange to have him spray now. If you want to start your own bedding plants such as petunias, tomatoes and peppers, plant the seeds indoors the latter part of this month in flats or cartons. Spend some time sharpening your garden tools. You'll find it makes digging somewhat easier. In any event, check up on your horse liniment and have it handy until those unconditioned muscles "get hep" to spring activities.—Pat.

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The Green Thumb

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April, 1957

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The Green Thumb

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The Green Thumb

Vol. 14

APRIL, 1957

No. 3

Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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IT'S COMING SOON OUR FIRST GARDEN FAIR

May 3, 4, 5 at the east end of the Cherry Creek Shopping Center at the corner of Columbine and First Avenue.

Our annual plant auction has grown up. It has now become a 3-day Garden Fair. The idea started to grow last year just after our successful auction, and caught on quickly. An enthusiastic committee, under the leadership of Mrs. Ed Honnen, has plotted, planned, schemed, and finally crystalized the idea into a super colossal Garden Fair. It is to be an outdoor event, complete with tents, holiday atmosphere, "barkers" and unusual displays featuring outdoor furniture, plant materials, and garden gadgets—in short—everything that relates to outdoor living.

We know that many of you have been asked to volunteer your services. However, we can still use additional help. For one thing, we need plant materials. If you are dividing and replanting your perennial beds, we can use any surplus plants you may have. We also need volunteers, men especially, to help at the fair, and, we need **you** to pass the word around. Let your neighbors know about the fair!

PATRICK J. GALLAVAN Editor MRS. HELEN FOWLER Librarian
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MEMO

Calendar of Events

- April 1—Fun with Flowers, 10 a.m., Woman's Club, 1437 Glenarm Place.
- April 2—Lakewood Garden Clinic, 7:30 p.m., Rocky Mountain Bank, 1415 Carr Street. Agenda: Trees and Shrubs.
- April 3—Botany Club meets the first Wednesday of each month, 7:30 p.m., Horticulture House.
- April 9—Lakewood Garden Clinic, 7:30 p.m., Rocky Mountain Bank, 1415 Carr Street. Agenda: Insects, Plant Propagation.
- April 9—Rocky Mountain Association of Landscape Architects, 7:30 p.m., Horticulture House.
- April 10—Organic Garden Club meets the second Wednesday of each month at 8:00 p.m., Horticulture House.
- April 10—Arvada Garden Clinic, 7:30 p.m., Arvada High School at 57th and Balsam. Agenda: Trees and Shrubs.
- April 11—Denver Rose Society, meets the second Thursday of each month, Room 186, City and County Bldg., 8:00 p.m.

April 17—Nature on the Screen Series, "Land of the Sky Blue Water," in Fran William Hall, Denver Museum of Natural History, 8:00 p.m.

April 19—ARBOR DAY

April 29—Littleton Garden Clinic, Agenda: Pruning Trees and Shrubs, 7:30 p.m., Arapahoe County Fair Grounds.

May 3, 4, 5—Garden Fair, Cherry Creek Shopping Center.

Green Thumb Program, 9:00 a.m., each Saturday, KLZ 560 on your radio dial. Pat Gallavan, Horticulturist, and Dale Morgan.

ERRATA

March 1957 Green Thumb: Page 65, top right column should read: *Chrysothamnus (nauseous) graveolens*. Greenplume Rabbitbrush. 5'. This plant requires a sunny position in a well-drained alkaline soil to produce its showy, goldenrod-like flowers. This is best grown from collected seed.

Fallugia paradoxa, Apacheplume. 5'. This shrub is attractive in early fall with its feathery fruiting heads or plumes. Its flowers are 1¼" in diameter and occur in May. Apacheplume requires an open, sunny location and an almost dry site. Propagated by seed.

Line 12—Cliff Fenderbush should be Cliff Fendlerbush.

Page 60. Second column, line 14—four feet should be four inches.

Page 61. Second column, line 26—at mining should be a training.



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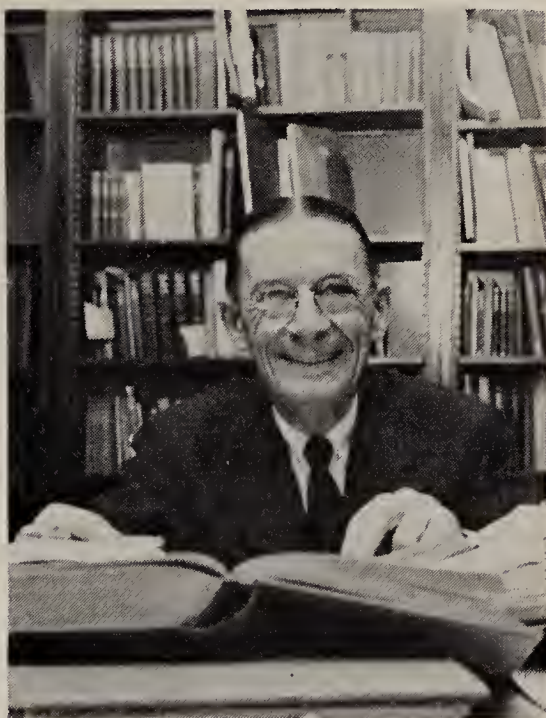
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ARBOR DAY -- HOLIDAY OF THE TREES

BY HAROLD PALMER PISER

Mr. Piser is the Managing Director of the Arbor Day Association which is a voluntary, non-profit, conservation, educational organization, dedicated to fostering and promoting Arbor Day and a better understanding and appreciation of trees.

This year marks a triple anniversary for Arbor Day and its founder, J. Sterling Morton. Make it a quadruple anniversary in Colorado, inasmuch as it is your seventy-third observance of this memorable occasion. Eighty-five years ago this coming April, Mr. Morton, newspaperman and Secretary of Agriculture under President Cleveland, introduced a resolution which set aside April 10 as a day for planting trees. And it was so inscribed in the Colorado law books in 1889 and now in Statutes Annotated, chapter 79 section 3-5. Since his death on April 27, 1902, however, Arbor Day has been celebrated on April 22, his birthday. This quadruple anniversary, then means that this coming April will be the 125th year since Mr. Morton's birth, the 55th year since his death, the 85th year since the founding of Arbor Day in Nebraska, and the 73rd year of Colorado's celebration of this event. (It was celebrated for three years in Colorado before it was put in the statutes.) Therefore, 1957 is a particularly appropriate time to pay special tribute to this illustrious American.



Arbor Day is observed in every state, in most of our territories and dependencies, and in practically every foreign country; so celebrate it on the third Friday in April, if that is your custom, but on that day and on the other 364 days, give serious thought to the underlying *meaning*. Everyone, young and old alike, should become fully aware of the importance of this day—its purpose and significance. Trees need love, care, and protection. There is a vital urgency about perpetuating their beauty and their usefulness. So plan early and prepare carefully for a NEW and GREATER ARBOR DAY. Arbor Day proposes for the future!



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ARRANGEMENT OF THE MONTH

This stunning fruit arrangement is a sample of some of the glamorous merchandise that will be offered for sale at the coming Garden Fair, May 3, 4, and 5, at the corner of Columbine and First Avenue, just east of the Cherry Creek shopping center. A committee, made up of members from our Association, has been working for several months on these striking fruits. The one pictured here, a charming creation by Mrs. Alonzo Lilly, has a particularly lovely combination of subtle colors, ranging from light green and yellow to apricot. A few blackberries and leaves give dark color accent. The container, owned by Mrs. Frank McLister, is an antique Japanese bronze. These arrangements have the fillip and sparkle of a new Dior sensation. They're high style and the current rage of the west coast. Don't miss them. Come to the fair! (Photo by Mr. Ray Turnure.)

A Salute to Our Senior Trees

BY KATHARINE BRUDERLIN CRISP

As we witness the veteran shade trees of Denver falling to make way for broad, glaring highways, we might pause to review the struggle of the many public spirited citizens who, in years past, experimented with and planted trees to establish beauty and shade in this semi-desert area.

In another year, 100 years will have passed since a cluster of log cabins sprang up in 1858 at the junction of South Platte River and Cherry Creek after the discovery of gold in Ralston Creek and along Platte River. This was the beginning of Denver, a city which in 75 years was to become known far and wide as a city of fine lawns and shade trees.

The new settlers found a semi-desert vegetation, grayish in appearance. The ground was covered with short grasses, such as buffalo and gramma, and with yucca, cacti, and sagebrush. For a short time during the moist spring season, colorful wild flowers appeared in profusion. But these died down as the warm summer approached. The only trees were found along the streams and consisted of broad-leaf cottonwoods, willows, and a few boxelders and lance-leaf cottonwoods. In this setting, there were many who had misgivings about the growth of trees.

Denver lies in the latitude 39° north, about the same as Columbus, Ohio; Madrid, Spain; and Peiping, China, but the climate is different. U. S. Weather Bureau records for a period of 61 years (1872-1933) show the mean annual temperature to be 50.1°, with temperatures ranging from 105° to -29°.

The average annual rainfall was 14.14 inches. January was the driest month of the year, with February, November, and December following in

the order named. Six months out of the year, the precipitation averaged one inch or less per month. April and May were the months of greatest precipitation, with July, August, and June following. The average annual snowfall was 55.9 inches, March, December, and April being the months showing the heaviest records.

The relative humidity over a period of 45 years has averaged 52.5 per cent. The highest for any month was 77 per cent. in March and the lowest 31 per cent. in October. Among 70 typical cities of the United States, Denver is the sixth lowest in relative humidity.

In Denver, the sun shines 66 per cent. of the time. The average date of the last killing frost in the spring is May seventh, and for the first in the fall, October fourth, the growing season lasting about 150 days.

Extremes of low and high temperature are of rare occurrence. But, the relative humidity is low and, as a consequence, the rate of evaporation from water surfaces and moist soil is high. The precipitation reaches its maximum in late spring and the summer months, and is so distributed through the year that prolonged extremes of dryness and rain are rare during the active growing season. The months of heavier rainfall, May, June, July, and August are the growing months. Cloudiness is never long continued.

The average wind velocity is not high, but wind storms of short duration occasionally reach a high velocity. Thunderstorms characterize the summer precipitation but are rarely attended by destructive falls of hail.

The soil is sedimentary in origin and consists of sand, gravel, and clay. It is rich in minerals, but contains little humus.



The above photographs, taken by the author in 1932, show two of our senior trees still standing. On the left is a catalpa tree on the capitol grounds and on the right is an American linden in Cheesman Park.

Denver occupies approximately the center of an artesian basin. The eastern rim of this basin has been found about twenty miles distant and the western rim is covered by the foothills of the Rocky Mountains. The northern and southern boundaries roughly correspond to the location of the towns of Platteville and Sedalia, respectively, 56 miles apart. The chief supply of water in early Denver came from artesian wells, first struck in 1883. This supply lasted for 15 or more years.

In this setting began the pioneer and earlier planting of trees. The opinion was generally held that trees would not grow in the sandy desert. The first attempts at planting trees occurred about 1870. Native cottonwoods from the banks of Platte River grew rapidly, especially where sufficient water was made available, and soon furnished the coveted shade.

An early advertisement reads as follows:

"I agree to deliver and set out shade trees of cottonwood, of a reasonable size, at one dollar each. Any person wishing to purchase can call at J. H. Voorheis' or at H. J. Brendlinger's store. L. S. Records April 10, 1865."

It was next discovered that the boxelder would grow as rapidly as the cottonwood, and the demand for this tree became so great that the nurseryman could not supply enough. Subsequently, the soft maple became popular, and later the ash tree and the Black Locust. The tree that has stood the test of years and which became the most popular tree was the American Elm.

The boxelder lost favor because of the annoying presence of a leaf roller.

The ash, as well as the Black Locust, became infested with a borer. In later years the elm trees should have had closer supervision because of scale insects.

About 1873 in Edgewater, James Richards planted two rows of Black Walnut trees grown from nuts. There were 35 trees in all.

Tree experimentation was carried on by Mr. and Mrs. Sam Brown near Littleton. In a nursery, trees were grown from seeds. Twenty-six Bur Oak trees, two feet or more in diameter, and in good condition were still standing in October, 1956, 86 years later. There were also two gnarled mulberry trees. A real tragedy to trees occurred when, a few months ago, several of these trees in their prime were uprooted to make way for a residential sub-division.

Two other names prominently associated with early experimental plantings are William N. Byers and Hiram Wolff. Mr. Byers planted many varieties of trees. A few are still standing on the grounds of Byers Junior High School. Mr. Wolff experimented successfully with the first apple trees brought by ox team to his ranch on Clear Creek. Later, in the nursery business, he tried many other varieties of trees. Mr. Wolff believed that practically any kind of tree could be grown in Denver under proper care.

Other Denver citizens whose names are associated with early tree planting are Governor John L. Routt, Governor James B. Grant, "Brick" Pomeroy, Thomas Patterson, John McDonough, Mrs. Henry W. Warren, and Mrs. Francis Gallup. Denver owes much to those early citizens who persisted in planting different kinds of trees in spite of the popular belief that nothing but cottonwoods, boxelders, Silver Maples, and possibly elms could survive. These enthusiastic pioneers are largely responsible for the impetus which in 75

years was to make Denver a city of beautiful trees.

As the years passed, trees in private and public parks and cemeteries began to attract attention. Riverside Cemetery, organized in 1876, was by 1892 regarded as one of the most beautiful spots in the vicinity of Denver. Being near the Platte River, water for irrigation was readily obtainable. The five trees common then, cottonwood, boxelder, Silver Maple, Black Locust, and ash, made the desert a shady retreat. The Bur Oak and the wild black cherry were the unusual trees planted there in that early period.

Fairmount Cemetery, organized about 1890 was the next cemetery in which trees attracted attention. Over 50 different kinds of trees were planted there. Before the expansion of the park system of Denver, this offered the best place for the study of the less common kinds of trees and still does.

Around the Capitol Building tree planting began in 1897 and 1898. Forty varieties of trees were growing well there in 1932.

The City Park system of Denver was started April 7, 1868 when Francis M. Case and Frederick J. Ebert donated to the city the 2.44 acre tract which eventually became the center of the city's playground system and is now known as Curtis Park.

The location of City Park was determined when it was a gift to the city from Mayor Joseph E. Bates during his administration, 1872-1873. On the land, northeast of the present park greenhouse, were planted cottonwood trees in an area that seemed then miles away from the city. City Park was extended in 1883. Trees were planted in circles which were connected by paths. Many of these were contributed by citizens and school children. The trees thus became an intimate part of the life of the people, and this, a satisfactory plan in the be-

ginning, gave rise to fixed public opinion which opposed strongly any modification to meet up-to-date landscape plans.

During the administration of Mayor Robert W. Speer 1904-1912 and 1916-1918, the city became "park-minded" and as a result "tree-minded." Mayor Speer wished to make Denver the most beautiful city in the world. He created the present system of parks and boulevards. The most famous of these improvement plans was the creation of Civic Center. The land was cleared in 1913. In 1918, during Mayor Speer's third administration, the eastern half was planted in red oaks alternating with ash trees. Some of the red oaks died and Bur Oaks have been put in these places. Many of the ash trees which served as "nurse" trees have since been removed.

Twelve miles of improved boulevards and parkways were maintained by the Park Department. Monaco Boulevard with honey locusts, Marion Street Parkway with its sycamores and hackberries, Seventh Avenue, with its evergreens, and Sixth Avenue with its hawthorns show in a most effective way what trees can do to beautify a city.

A more recent phase of city beautification may be seen in the ground development of some of the public schools. Landscaping was adapted to the needs of every situation, varying from the placing of clumps of shrubbery to screen an unsightly spot, to the more elaborate plans on the grounds of the junior and senior high schools. Good examples are: East High School at the entrance of City Park, West High School at the edge of the Sunken Gardens, South High School mirrored in the lake at Washington Park, and Lake Junior High School overlooking Sloan's Lake Park. From 50 to 65 different species of trees were placed on these school grounds.

In years past, the observance of Ar-

bor Day, through the planting of trees by school children, called attention to the importance of trees at least *once* a year. It was hoped that through early association with trees, the outcome would be to develop a group of citizens who would cherish the trees and who would not be too ready to sacrifice the dignity and beauty of an old, well-established tree to passing whims.

As the city expands, trees sometimes have to be sacrificed because they cannot be transplanted. This happened, for example, when the old East High School building was razed. A few trees were moved successfully to new grounds, but many of the class trees were in too poor physical condition.

In 1933, the writer made a survey of the trees of Denver, locating the finest specimens and making measurements as to diameter and height. In an area as large as Denver, certain trees could easily have been missed and not included in this survey. The survey, however, included 105 species representing 23 families and 37 genera; all but a few of which were well-established in Denver and its vicinity.

The largest trees then growing were the native broad-leaf cottonwood, the white willow, and the Silver Maple. The most common tree for street planting was the American Elm. The Chinese Elm, honeylocust, hackberry, American Linden and black walnut were growing very successfully. Among the ornamental trees were the white birch, weeping cutleaf birch, scarlet-fruited thorn, Cockspur Thorn, horsechestnut, catalpa, Russianolive, and flowering crab. Less frequently encountered, but growing well, were the Kentucky Coffeetree, English, Bur, and red oaks, Japanese Pagodatree, yellowwood, chestnut, sugar maple, and purple beech. The tuliptree, the Ginkgo, and the Redbud were growing less successfully.

Thus in a period of 75 years, a

semi-desert was transformed into a locality outstanding for its beautiful trees and well-kept lawns. This was made possible because a sufficient supply of water had been made available.

During the past 25 years a change in the attitude toward trees has become apparent in our city. Not many new trees have been planted, nor have older trees been replaced. Newcomers

to our city should be made aware of the importance of tree planting and preservation. A revival of Arbor Day might help to make our citizens "tree-minded" again. To establish trees in any locality is a long process. A fine foundation has been laid in Denver—are we going to let this heritage of experience with trees slip away?



NATIONAL SEED LABORATORY PLANNED AT FORT COLLINS, COLORADO

Colorado Agricultural and Mechanical College at Fort Collins has been selected as the site of a new National Seed Storage Laboratory — a place to store valuable germ plasma for future use in developing better crops. The building will include independently controlled storage chambers for seed, a seed-germination laboratory, and office space. It will also have space and equipment for research on better methods of storing viable seeds for long periods. Lack of an adequate seed-storage facility has in the past resulted in partial or complete loss of potentially valuable breeding stock.



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SHADE TREE PLANTING FOR RESIDENTIAL AREAS

BY M. WALTER PESMAN

Are you living in a "dated area?" The aristocratic section of Grant Street, with its brown-stone substantial mansions and square porches, is certainly "dated." So are many other older districts; they tell their age of construction almost as accurately as if each had a corner stone in full sight, showing the exact year.

Contrary to what many people think about "dated" things, I do not hold this against them. A dated building may be a great deal more interesting than these rows of nondescript so-called homes.

The fact is, that you can hardly escape living in a "dated" neighborhood, no matter what type house is on your street, because the street trees in Denver can be used as a gauge of the period of their planting—in general that is.

Roughly speaking we can distinguish at least four, possibly five different periods in Denver's tree history, beginning with the earliest habitation, to the present sprouting up of subdivisions all over the place. Each period is marked by typical trees.

I. The early settlers in the Denver area found very few trees reminding them of their erstwhile homes. As they looked around, all they found growing native were cottonwoods, boxelders, and willows which followed the waterways; dry prairies were treeless.

What valiant efforts those early pioneers made in order to have a few trees established around their homes. Water often had to be carried by buckets to keep the new transplants alive. The first trees planted in City Park were cottonwoods and boxelders. There was a strong belief that nothing

else *would* grow in this arid country. Even religion was brought in to prove "if the Lord had meant for other trees to grow here, He would have provided them." Thus we had a long period of cottonwood-boxelder-and-willow-planting.

But many a sturdy pioneer decided to make a try at the things that "couldn't be done." Just as the dandelion is said to have been brought in by a dear French lady who was homesick for it, so, many a good shade tree was laboriously brought in from the East—often on oxcarts—and made to grow in this new home land. American Elms grew native in the states just east of here, as did Black Locusts, sycamores, maples, and ash. And it wasn't long before a variety of such trees were found on the newly established home grounds.

Particularly active in this new endeavor to try new trees were such people as W. N. Byers, Hiram Wolff, and Mrs. L. A. Howard. Fairmount Cemetery became known for its beautiful oaks and maples, and the Sam Browns planted the Bur Oak grove near Littleton. On the eastern plains a number of evergreens such as Ponderosa Pine and red cedar were established with the encouragement of the Colo. A. & M. College. Thus it was discovered that this country could grow really worthwhile trees.

II. So the second period in Denver's tree growth was ushered in. Not many of the less common trees were available at first. As a result, we find that whole streets were lined with American Elm, Silver Maple, and Green or Red Ash furnished by the few nurseries that were established. Among

these early nurseries were the Park Floral Company on East Colfax and Josephine, and Braun's Nursery on York and Second Avenue, as well as H. M. Chamberlin and Son, an early landscape firm. Braun's Nurseries started in 1880, the Northern Nursery followed soon after Gutheil Park Nurseries were established in 1890. Wilmore Nurseries started with dahlias and soon branched out.

An interesting offshoot of this elm-maple-ash period was the Black Locust craze. Here was a fast growing tree with beautiful, fragrant white blossoms that could be grown for fence posts and ornament, and it did not take too much water. Even after the Black Locust borer made short shrift of them in Denver, outlying towns kept planting them. By this time the borer has found them all, and there is hardly a specimen left of that short Black Locust period.

Toward the end of this second shade tree splurge in Denver came a new impetus. Mayor Robert W. Speer had become aware of the fact that Denver was becoming an oasis in the original desert, and that trees had a great deal to do with its charm. Why not then encourage more and more people to plant trees? Why couldn't the city itself act as a disburser of trees? Free trees for any home owner!

The idea resulted in hundreds of new trees being planted all over the city. Sad to say, it also resulted in too close planting. How much whisky can a Scotchman drink? Any *given* amount. How many trees can a home-owner plant? Any *given* number. Trees were planted at 25, 20, even 15 or 10 feet distances in the parking. Many of those old trees are now in poor health and are barely eking out an existence. All the same, the over-all effect was stupendous!

III. Then suddenly arrived a tree "to answer every home-owner's prayer," the

Chinese Elm. According to reports, it "had everything": fast growth, absolute hardiness, freedom from Dutch elm disease, good appearance, cleanliness, what not? Nurseries shipped them in by the thousands—and sold them by the thousands—all over the country. The first ones came in in 1936, the next year saw both Chinese Elm and Siberian Elm flooding the market. We cannot fail but notice the areas in Denver that were built up during the "Chinese Elm invasion."

Then came disillusionment. Once more we found out that, in the nature of things, there just isn't such a thing as "the perfect tree." We could not tell beforehand what particular drawbacks might show up even though some of us knew that there would be some. In this case the vulnerable quality was fragility. Quick-growing trees with resultant large cells are bound to be brittle; large cells are not tough cells.

A bad windstorm would suddenly break a beautiful tree in such a way that practically nothing but a gaunt trunk would remain. An early snowstorm would leave havoc in its wake; the Chinese Elm had not learned to grow slowly enough to create pliable, tough wood. Only those trees that had been growing on dry land had formed hard enough fibers to withstand sudden breakage.

IV. Recently, we have entered into a new shade tree period based on something that has almost become a doctrine—the small tree doctrine. Out with the giant trees, like elm, oak, sycamore, maple, and black walnut—in with the pygmies like crab apple, hawthorn, mountain ash, and goldenrain-tree.

Sure enough, there is sound reasoning behind the doctrine. Our modern homes are on horizontal lines, usually one-story, and would be dwarfed by tall trees. Electric wires and telephone

wires have invaded our streets and alleys like a huge spiderweb. They must be kept away from tree branches. Down with anything that interferes with the intricate network that has become so essential to our American mode of living. It certainly is more logical to prevent interference than to keep on fighting it year by year in a very costly program of topping and trimming.

Now where do we go from here? Is this small tree period the end of the line in our historical sketch? Before trying to answer that, let us investigate the result of our previous tree planting habits.

It is easy to find mistakes looking backward; difficult to foresee what new mistakes may be in the making now.

Unpleasant results of early tree planting are, moreover, closely interwoven with the natural "blighting" that is striking all our cities—from the inside out.

There is little left of the early cottonwood-boxelder planting in earliest Denver. One by one the majestic cottonwoods have been felled, sometimes because they really did interfere with later progress (with or without quotes, as you prefer), sometimes because they were the victim of the whispering campaign—"a dirty tree."

A few poor, bumpy boxelders here and there, poorly kept and ungainly, keep up the fight in the oldest parts of our city and an interesting thing is happening in addition. Quite uninvited, but inexorably, a struggle for existence is going on. In this struggle a less favored tree is winning out—the Tree of Heaven (*Ailanthus*). It can take neglect, smoke, lack of water, and pavement conditions. As has been said, it is "the tree that grows in Brooklyn" and in any other impossible city spot.

The American Elm-maple-ash period is a little better off. Here and there we find well-kept avenues of these older trees that still add to Denver's

beauty and reputation. In other old streets, they are sickly looking, actually diseased, dying, and suffering from too close planting. Any disease, any insect is apt to find these poorly-kept trees. With a well-considered program of tree sanitation, many of these older trees might be saved and brought back to former glory.

The Chinese Elm period is still on trial. Every early snowstorm, every strong windstorm, results in a number of poor victims—trees that have just come into their full glory and become practically useless after the breakage. Perhaps, here again, the survival of the fittest will point the way. Chinese Elms are not necessarily "out," but they have lost their erstwhile reputation of being the ideal tree!

Just now we are in a rather barren period. Miles and miles of new subdivisions are treeless. The reason is partly a financial one: after a young couple scrapes together every penny for down payments and for monthly installments on dozens of living items—well, landscaping is pushed off until—when? And the very nature of a small tree does not make it much of a show for quite a while. Are we caught in a dilemma where we are conscious of the mistakes of the past, and where we are afraid of making mistakes for the future? That sort of an attitude is hardly in the American tradition!

No, I believe we can do better! Mistakes are good if we can learn from them. And we can!

All through this historical tree planting sketch runs a recurring lesson, a lesson that we might just as well learn right now, and profit by it. The words "variety" and "personal initiative" seem to point the way.

In all the previous periods, we went to extremes in choice of material. Cottonwoods, boxelders, and Black Locusts did not fill the bill. Neither did the few types of trees of later periods: elm, maple, ash, in endless repetition, no

matter how beautiful the result was in many blocks. Not enough variety! Too great an invitation for insects, disease, debility. And too much of a sameness in treatment.

If we now suddenly switch over to the limited number of small trees, we'll fall in the same error, and time will point it out. Nature simply will not be put into too tight a harness. Man has not been smart enough to develop the ideal tree for all occasions.

The solution? Perhaps we might stop dividing our time in "style" periods and we might begin to realize that each period had some good points. Why not apply the lessons from each to all?

Yes, we might even continue to plant some good old cottonwoods (only male if you wish). They are ideal in spots where area is not at a premium, and where there is the pioneering character that fits cottonwoods, willows and even boxelders so well. (Boxelders are a natural in semi-wooded foothills and canyons.)

Some large Ponderosa Pines are not out of place where they have a chance to spread out to their full majestic size, while pinyon pines are more in scale on small home areas.

Where wires are no obstacle, and where a continuous line of shade trees is in proportion with the size of buildings, by all means let us have some alleys of grand elms, honeylocusts, oaks, hackberries, or more unusual trees. Washington, D. C. is justly proud of its Ginkgo avenues, Paris of its horsechestnuts, among others. Let us have the large variety of shade tree that we can actually grow in this region. Kentucky Coffeetree is beautiful, a whole block of Schwedler Maples would be gorgeous. Lindens and horsechestnuts are feasible with a little special care.

The smaller trees, in variety, are good in many of our new subdivisions, either in row planting or in groups. Again, a little ingenuity is a big help.

Did you ever notice the yellowwoods in Cheesman park and on South High school grounds? Wouldn't a group of goldenraintrees be a beautiful spot to arrest attention? Even tree lilacs and pink flowering locusts have possibilities.

A type of design that has not been featured enough is the occult balance a street may show by an occasional specimen tree at uneven distances, perhaps halfway hidden by a home, or in turn framing it. That is where a half dozen or more white weeping birches in the same block might become a regular photographers' gathering place at times.

There is only one more difficulty in this perfectly logical and realistic general idea of added variety—how can we actually achieve these "civic pictures?"

Private initiative often points the way; equally often it spoils what it has started. Here is where a bit of co-operation can help out. Just a half dozen people in a block can get together, talk things over, and arrive at a solution that will become the "talk of the town." A whole block of red oaks may be the result without much ado. After all, the cost is little more, might even be less, if a whole block does group buying! Nurserymen will be glad to co-operate.

A few towns, like Grand Junction, have at times attempted to act as guides to systematic tree planting. As time goes on, and as we become more conscious of the possibility of joint action or civic action, we may pick up such an idea.

In the meantime, there is a possibility for subdividers to start a home-site out right. We buy with sidewalks and curb and gutter installed. A completed street tree planting is the next step. Sometimes all that is needed is for one forward-looking businessman to point the way. Maybe the time is just ripe!

PATIENCE PAYS IN SEEDING LAWNS

BY ROBERT W. SCHERY, DIRECTOR, BETTER LAWN AND TURF INSTITUTE

Seedsmen sometimes receive angry notes from customers to the effect that their good quality seed was "no good, hasn't sprouted" or "contained more weeds than seeds." They know it can't be true, since all seed is required by state law to be tested for sproutability every nine months, and weed content is restricted to infinitesimal proportions. Time after time portions returned are re-tested, only to prove viable and virtually weed-free, indicating no damage or contamination while in hands of either retailer or consumer.

When actual cases are tracked down, lack of familiarity with seeds and lawning usually proves the cause of misunderstanding. The weed surmise is easily demolished: government analysts have checked, and can check again, weed content already specified on the box. Moreover, the kinds of weeds noticed in the lawn are the most certain not to be mixed in grass seed. Such types seldom flourish in grass harvested for seed, and seed size and shape is so different from quality grass that they remove readily in seed cleaning operations.

Various tests have shown almost all soils to be infested with thousands of seeds of many varieties. Scrapings from a shoe or an animal hoof have produced scores of weed seedlings, when brought into the greenhouse. A lawn soil can hardly be free of weed seed, although it is readily possible for good grass to suppress weed growth. It is a certainty that no reliable brand of lawn seed will bring any noticeable quantity of weeds to the lawn.

The problem of slow sprouting or seed failure is not so cut-and-dry. In planting, the seed could have been buried too deep (in excess of a few times its length), or so perched on the

surface without protective mulch as to have blown or washed away. Deeply planted seed may become exhausted trying to reach the surface; or compacted into the soil it may not get enough air to sprout for some time.

Even correctly planted, seed sprout is sometimes slow. High quality perennial types like Kentucky Bluegrass and Red Fescue aren't quite so quick, and certainly don't produce so large and obvious a seedling, as the coarse hay grass types. The large seed of Ryegrass (there are only one-fourth million to the pound) provides more initial energy for its seedling than does the smaller bluegrass, (here you get a bargain of over two million to the pound).

Under ideal conditions good Kentucky Bluegrass seed will sprout in four to five days; Ryegrass, chief ingredient of "cheap" mixtures is not much faster. The fine-textured bluegrass might not be as noticeable, but each sprout once firmly rooted is the makings of a persisting high-quality cluster, spreading and enlarging from underground stems to make a tight durable turf. Have patience; this is worth waiting for.

In a way, the impatient lawn novice is his own worst enemy. By his demands, he forces seedsmen, who would prefer to provide in a mixture only high-quality perennial seed, to include quick-sprouting "nurse grass" species merely for a quick impression of greenness. These nurse grasses could more properly be termed "robber grasses," since they usurp space, moisture, and nutrients needed for the slightly slower lawn grasses. It's like planting weeds to compete with your quality grass!

Getting back to this matter of patience. It was mentioned that good bluegrass can sprout in four or five days.

But not always, obviously. Speed of germination depends upon the right combination of moisture, temperature, and air accessibility. Best temperatures for quick sprouting are around 65 or 70 degrees in the day. Planting in early spring, as is most desirable for the sake of grass establishment, may slow down the sprouting by days or even weeks if the weather remains unseasonably cold.

Seed sprouting is probably delayed more from drying than for any other reason. In rainless, sunny, and windy weather it may be advisable to syringe the new planting several times daily for moisture enough to break dormancy. Slight burial in the soil (up to $\frac{1}{8}$ inch deep) helps hold the moisture about the seed—or better still—one-fourth inch of sphagnum moss, clean straw, or some similar mulch. In these early stages, don't water heavily for fear of washing soil and seed. Occasional light sprinklings when the soil surface appears obviously dry should turn the trick; in spring, with the winter reserve of moisture accumulated, the deeper soil is probably amply moist.

Nor will seeds sprout in standing water. Hence, poor drainage can forestall sprouting too. But only infrequently does such exclusion of air limit germination in the average lawn, unless, as previously mentioned, seed be buried much too deep. Certain soils "melt" to a nearly impentable crust, or can be compacted when wet by rolling and traffic. Then, it might prove difficult both for air to reach the seed, and for seedlings to push through hard soil!

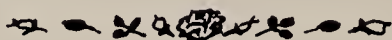
Pains can be taken to insure proper depth of planting and adequate moisture (if this is limited). Vagaries of weather will control soil temperatures, although black mulches (as horticultural peat), open sun, and south-facing slopes will appreciably raise day-time temperature in spots. But, the main thing is to have patience; give good seed several weeks, if necessary. Satisfaction in the long run comes with a permanent turf, rather than a quick-sprouted Ryegrass cover almost sure to be unsatisfactory or lost within the year.



Dear Friends of the horticultural world:

I hardly know how to express my appreciation for all the honor and courtesy bestowed on me, but I would like for you to know that I am very grateful for them and I thank you.

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BEWARE OF TREE QUACKS

How often have you heard someone say, "I've found it just doesn't pay in the long run to buy cheap clothes, poor quality home furnishings, or low grade groceries." And yet, let some tree quack come to the door and offer to trim shade trees for a ridiculously low figure and bingo, he's got a job!

Quite often people have the idea that if a man is a bonded and licensed trimmer, he is qualified. Far from it! Bonding is only to protect the homeowner from liability for accidents which may result from the tree pruner's operation. And a word to the wise here—see proof of the bond before giving the job to anyone. It is an easy thing for someone to say to you, "Yes, I'm bonded," only later to find yourself stuck with a lawsuit and damages.

So beware of door to door soliciting for tree work; your reputable and qualified men don't have to do this. Beware of bargain prices. Beware of the person who cannot present a business card with a business address and phone number. And beware of the person who cannot furnish references or cite examples of his work for you to see. It's always a wise policy to check with the Better Business Bureau (and Horticulture House); they can furnish you with helpful information on matters such as these.

Know what to expect from your tree trimmer or arborist. Listed below are principles taken from the National Shade Tree Conference Arboriculture Code. Familiarize yourself with these and pass them on to your neighbors,

friends, and garden club. Let's stop this threat to the beauty of our city!

1. Do not allow your trees to be topped or pollarded. Never permit your tree to be cut back to stubs with square cuts; all at the same height. This will mar the winter beauty of the tree and cause excessive weak growth and encourage the invasion of wood rot. Remember, a good pruning program, extended over a period of time, passes unnoticed by most people; but a poor pruning job, such as stub pruning or topping, attracts everyone's attention.

2. Complete pruning should include the removal of dead and dying branches together with such diseased, interfering, and other living branches as may menace the health, strength, and beauty of the tree.

3. A pruning cut should be as small as practicable to favor early growth of healing tissue. Cuts to remove lateral limbs should be reasonably flush with the parent limb or trunk.

4. Pruning wounds over one inch in diameter and those exposing heartwood should be coated with a good wound dressing. Use only paints proved suitable for tree wounds.

5. To avoid damage to desirable branches and other plants, it is best to lower heavy top branches to the ground on ropes.

6. Prompt and sanitary disposal of pruned branches is important for preventing the spread of some insect enemies and diseases.

—From the Finch Arboretum Newsletter

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This is April 19, Arbor Day! Don't cut down that tree!

About Arbor Day

To the school children of the United States:

"Arbor Day (which means simply 'Tree Day') is now observed in every state in our Union—and mainly in the schools. At various times, from January to December, but chiefly in this month of April, you give a day or a part of a day to special exercises and perhaps to actual tree planting, in recognition of the importance of trees to us as a Nation, and of what they yield in adornment, comfort, and useful products to the communities in which you live.

"It is well that you should celebrate your Arbor Day thoughtfully, for within your lifetime the Nation's need of trees will become serious. We of an older generation can get along with what we have, tho' with growing hardship; but in your full manhood and womanhood you will want what nature once so bountifully supplied, and man so thoughtlessly destroyed; and because of that want you will reproach us, not for what we have used, but for what we have wasted.

"For the nation, as for the man or woman or boy or girl, the road to success is the right use of what we have and improvement of present opportunity. If you neglect to prepare yourselves now for the duties and responsibilities which will fall upon you later, if you do not learn the things which you will need to know when your school days are over, you will suffer the consequences. So any nation

which in its youth lives only for the day, reaps without sowing and consumes without husbanding, must expect the penalty of the prodigal, whose labor could with difficulty find him the bare means of life.

"As people without children would face a hopeless future; a country without trees is almost as hopeless; forests which are so used that they cannot renew themselves will soon vanish, and with them all their benefits. A true forest is not merely a storehouse full of wood, but as it were, a factory of wood, and at the same time a reservoir of water. When you help to preserve our forests or plant new ones you are acting the part of good citizens. The value of forestry deserves, therefore, to be taught in the schools which aim to make good citizens of you. If your Arbor Day exercises help you to realize what benefits each of you receives from the forests, and how by your assistance these benefits may continue, they will serve a good end."

Theodore Roosevelt

**The White House
April 15, 1907**



THE BLUE COLUMBINE AND THE SILVER SPRUCE

"By act of the Legislature, March 22, 1889, the third Friday in April of each year was designated as Arbor Day in Colorado, and the occasion has been faithfully observed by the schools of the State.

"The naming of a State flower by vote of the children taking part in its first celebration, April 1890, gave zest to the occasion, and poems and essays on the flowers of the State afforded a pleasing programme for the literary part of the several entertainments in honor of the day.

"Fifty native flowers were entered in the contest, and the columbine was selected by a large plurality. Number of votes cast—22,316. Of these the columbine received 14,472, its nearest competitor being Lily Mariposa with 1,157 votes, the cactus following with 1,027 votes.

"In like manner, on Arbor Day, 1892, the Silver Spruce was chosen as the state tree, pronounced by botanists to be the most beautiful conifer in the world—very rare, and found only in the Rocky Mountains."

—from History of Colorado by Wm. N. Byers, 1901.

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ALTITUDE CAN BE AN ASSET

BY ROBERT L. WOERNER, DENVER BOTANICAL GARDENS

The Denver Botanical Gardens are one of the newest developments in the botanical world. We cannot hope to claim fame for greatness in area, or in the number of plants grown. "Rocky Mountain horticulture is different" to quote George Kelly—for we have a semi-arid climate with sunshine that is too bright and too constant, and soil that is too heavy and too alkaline. Therefore, we must be more modest in our size and our ambitions, and leave the large arboreta and botanical gardens to those parts of the country which are endowed with more clement climatic conditions.

Denver does have an asset which can be made the most of, and that is its altitude. The botanical gardens in the "Mile-high City" are thousands of feet higher in elevation than the other public gardens in this country. In addition, the Continental Divide towers more than a mile above us just west of Denver. Here, in the Rocky Mountains, are marked changes in vegetation as the altitude increases; changes which have been identified by classification into definite zones—the plains, the foothills, the montaine, the sub-alpine, and the alpine zones. These zones include over 3,000 varieties of native plants, most of which can become a part of our botanical garden through the establishment of unique altitude stations or botanical units which will correspond to the zones of vegetation.

At least five of these units are planned for development in the near fu-

ture. Altitudes will vary from 5,000 feet at Denver to over 12,000 feet at timberline on Mount Evans. Yet all of these units will be within 70 miles of the Civic Center, so it will be possible to visit one or more in a single day.

Sites for these stations are available in the Denver Mountain Parks or other areas. Their construction will be simple and inexpensive, consisting of a graded parking area and a foot trail to the plant sites. Paths will be cleared and improved sufficiently to permit their use by people of all ages. They will be of sufficient length to include as much vegetation of the plant zone as possible. Where necessary, plants will be transplanted within the zone to increase the number of varieties to be seen from the trail. Aside from this, the units will require only suitable identification and information signs, and labels for the plants.

In these altitude units, the Denver Botanical Gardens can accomplish something never done before—show the people a wide range of native plants in their true settings. Yet all of this will be readily accessible by automobile or bus via paved highways. Such units will add to the interest of the botanical gardens in Denver proper for, as the season progresses, each altitude unit will take the spotlight in turn, with displays of thousands of wild flowers.

For those who cannot travel the short distance to the nearby mountains, we may develop an alpine collection in

Denver, preferably in a cool, alpine house, or sunken greenhouse. Not all of the plants of high altitudes can stand the change to the lower elevations, but a suitable plant house can serve to keep the soil cool and either moist or dry in imitation of the alpine or sub-alpine conditions. Much has to be learned in the field of alpine plants and we are well equipped for that purpose here. It will be no problem to compare our artificial or test environments for alpine plants, for we will have the same plants growing naturally, close at hand — identified, labeled, and easy to reach.

Through this rare advantage of great altitude variation, the Denver Botan-

ical Gardens can offer an unusual collection of plants. The best of the woody trees and shrubs, herbs, bulbs, annuals, and perennials for the Colorado climate will be displayed in garden units in Denver. Here, too, is the location for a conservatory for tropical and exotic plants. In addition, we can offer exhibitions of cacti and desert plants characteristic of lands to the south, and the tiny flowering plants of the arctic growing in their natural habitats, all within a day's drive! Altitude is truly an asset to the Denver Botanical Gardens. Through the intelligent development of this asset, we can create one of the outstanding botanical collections in the world.

OFFICERS AND TRUSTEES OF THE BOTANICAL GARDENS FOUNDATION FOR 1957

At the recent annual meeting, Dr. Moras L. Shubert, associate professor of botany at the University of Denver, was elected president of the Botanical Gardens Foundation of Denver. He succeeds Mrs. John Evans, who has headed the foundation since it was formed in 1957 to co-operate with the city park department in developing botanical gardens in City Park and other areas.

Other officers are M. Walter Pesman, secretary; Mrs. J. Churchill Owen, assistant secretary; and John Mitchell, treasurer.

New members named to the board of trustees were Mrs. James Arneill, Lawrence Long, Mrs. Everett Parker, and John Mitchell. Re-elected to the board were Fred R. Johnson, M. Walter Pesman, Mrs. James J. Waring, and Dr. Moras Shubert.

Other members of the board are Mrs. Alexander L. Barbour, Thomas P. Campbell, Dr. J. R. Durrance, William H. Ferguson, Mrs. George H. Garrey, Maurice N. Marshall, Hudson Moore Jr., Robert E. More, Dr. Robert L. Stearns, and Mrs. J. Churchill Owen.



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A DEPARTMENT OF NATURAL RESOURCES

In Governor Steve McNichols' inaugural address, he recommended the establishment of a department of natural resources to co-ordinate natural resource functions, now scattered in 18 state agencies.

House Bill No. 64, by Representative Albert Tomsic of Walsenburg, proposes to accomplish this. It provides in part, "The department shall develop an integrated state policy for the conservation and development of resources, and develop constructive programs for effectuating such prudent and conservative use and orderly development of all resources of Colorado, including but not restricted to, soils, water, forests, fish, wildlife, minerals, oils, gas, coal, parks, and recreation facilities."

The bill further provides that "the department will promulgate plans to eliminate overlapping functions, and to accomplish more efficient and economical operations of such agencies."

The governor is authorized to appoint a director of natural resources to accomplish the objectives and duties outlined in the measure.

It is understood that the bill has passed both houses in amended form and is awaiting the governor's signature.

This measure should remedy such anomalous situations as those under which state owned forest lands are managed by the state board of land commissioners, as provided by the state constitution, while the state forest service, now under the state board of agriculture at Fort Collins, may or may not be called upon to advise the board of land commissioners regarding policies to be followed in the harvesting of timber from state land.—*Fred R. Johnson*

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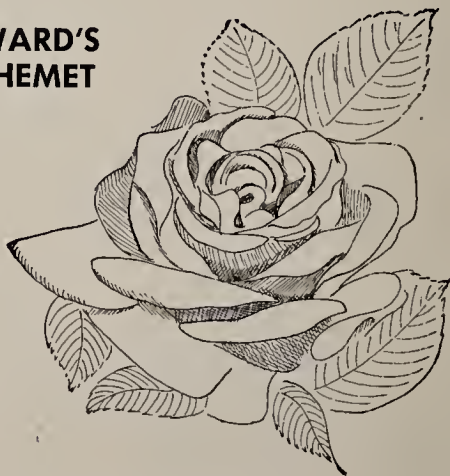
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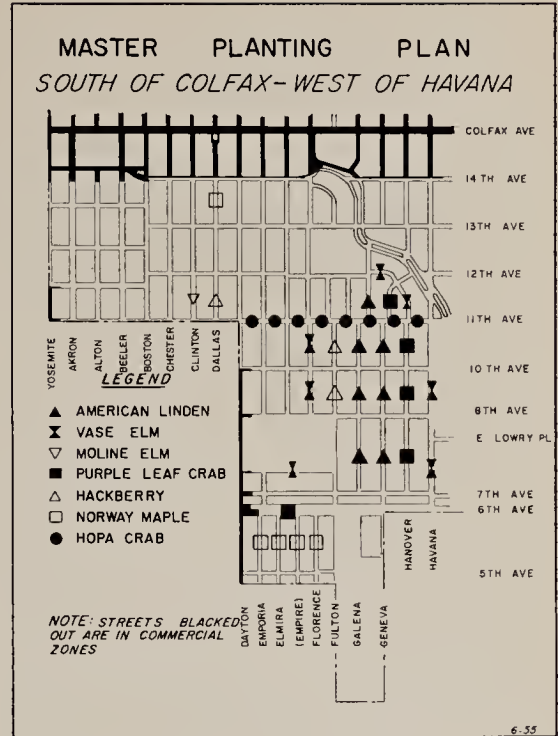
By RICHARD ARMSTRONG

"We live by example. So in planting trees we set a fine example for others, for they see what we have done and thus the message of the trees is spread." (Charles Lathrop Pack.)

The City of Aurora, a residential community of 35,000 directly adjoining the eastern city limits of Denver, inaugurated its tree-planting program in 1954 in order to provide shade and beauty for this rapidly growing city, to reduce glare from the sun, to deter high winds and dust from the plains, and to help purify the air. A far-sighted city administration made a systematic approach to determine the species of trees which can be planted to best advantage in this area.

Consideration was given to the height of a tree at full growth, life span of a species, resistance to disease, and maintenance problems. A single species for a considerable distance was planned for a more pleasing effect, but different kinds of trees are being used throughout the city to avoid monotony and the possibility of disease or insect attack on any one particular kind. The trees have been and are being planted fifty to sixty feet apart, twenty-five feet from the center of alleys and thirty-five feet from corner intersections. Six to eight, and eight to ten foot specimens were chosen as they establish themselves more easily and are less expensive. The city waters the trees through the first two growing seasons; the adjacent property owners care for them thereafter.

After planting 400 trees in 1954, public acceptance and approval of this program was such that 2,000 were planted the following year; and 1,600



in 1956. With the coming planting of approximately 5,000 trees during April and May of this year, every street and avenue in the city will be lined.

For years such men as George Kelly and John Swingle, outstanding horticulturists in Denver, have advocated proper tree care and the continued replanting of young trees. Denver's Street and Shade Tree Committee is endeavoring to solve the problems arising from residential expansion and shifting in a metropolitan city, and from the continual encroachment of street widening.

Aurora's advantage over Denver in the establishment of a tree planting program is two-fold: 1) There are very few old residential areas in Aurora where trees have become a problem; and 2) The curb and gutter combination along Aurora's streets eliminates cramped planting between the sidewalk and the curb.

It is hoped that other communities will follow the fine example of Aurora, and that the message of the trees will be spread throughout the Rocky Mountain area.

PRESIDENT'S REPORT

BY HERBERT C. GUNDELL

As your President, I am both honored and privileged to present to you an annual resume of the Colorado Forestry and Horticulture Association's activities and progress during the year 1956.

First of all, I would like to report to you that the job of President was made considerably easier during the past year by the increased effectiveness of our paid staff members and by the continuous and loyal efforts of many Board members.

Your Board of Trustees engaged in 12 regular meetings during the past year. In addition to that, a number of executive meetings were held in order to transact important business when time was of the essence. The addition of six outstate Trustees to the Board, thereby increasing the number from 27 to 33, brought the Association great benefits.

During the last year, we have had our Board meetings at lunch time and shared a little good fellowship and friendship before getting down to business. I suspect that our attendance at the Board meetings was outstanding primarily because Mrs. Charles Enos and her daughter, Becky, are such excellent cooks and served us so well.

The finance committee has been extremely helpful during the past year.

Under the leadership of such well-seasoned businessmen as Mr. Armin Barteldes, Mr. Fred Johnson, and Mr. LeMoine Bechtold, we were able to obtain the very best use of our money. Although our income during the past year fell considerably short of our expenditures, we feel that this temporary problem will find a satisfactory solution during the coming year. Our very spe-

cial thanks also go to Mr. Everett Cline, a member and Certified Public Accountant who rendered valuable services in auditing our books recently.

One of our busiest committees the year around is the Editorial Committee. Under the faithful leadership of M. Walter Pesman, our Association was able to publish 10 very fine issues of The Green Thumb magazine during 1956. Under his leadership we have made many improvements in our monthly publication.

Our very special appreciation goes to Mr. Henry Toll, who rendered valuable legal services in conjunction with the preparation of the agreement with the new publishers of The Green Thumb.

Speaking about our Green Thumb magazine, I must report to you on our membership. Our membership is as follows: 1206 or more than 2/3 are \$3.00 members. 342 are active members at \$5.00 per year, 75 are contributing members at \$10.00 a year and the remaining 150 memberships are those that really help us close the breach between expenses and income, ranging anywhere from \$25.00 to \$1,000.

Another important community service which our Association renders each year is the annual series of Look and Learn Garden Tours. During 1956 we held four of these Tours in which we visited 26 very fine homes in the Denver area. The small fee that we charge for this event is designed to augment our financial income. It would, however, not be at all possible to hold these annual Look and Learn Garden Tours without the devoted volunteer effort of the Committee of ten members under the wonderful leadership of Mrs. Kingrey, Mrs. Robert McCurdy, Mrs. Frank McLister, and Mrs. Charlotte Barbour and without the devoted service of 60 hostesses and experts. You see, this is an out and out

effort and everyone is wonderful about it.

One of our important committee efforts was made during the past year by our newly formed Shade Tree Committee.

The group has undertaken a number of studies during the past year in conjunction with the increasing traffic problem in a growing city and has rendered several reports to our Mayor, Will F. Nicholson, on some of their findings and deliberations. This committee is under the able chairmanship of our most devoted Fred Johnson, Johnnie-on-the-spot always and immediate past president of our organization.

Another committee that has produced growth during the past year is the Library Committee. A number of new volumes were added to our already outstanding collection of fine horticultural books.

Our physical facility, Horticulture House, which is very graciously made available to us at the very low rental of \$1.00 per year through the generosity of Mr. and Mrs. John Evans, has also seen some improvement during the past year. Not only were the kitchen facilities remodeled, but our couch and chairs were also completely renovated and recovered during the past year. Our very special thanks go to Mrs. Henry Conrad who assumed the responsibility for carrying out this improvement.

Our annual spring auction was a lot of fun. For the first time in several years we held the auction in a new location, a spot on the south end of the Belcaro Shopping Center which is located a little closer to a large area of new homes inside the City of Denver. Thanks to the generous donations of many nurserymen, garden supply stores, other individuals and members of our Organization, we had a large quantity

of garden supplies and nursery stock for sale on that day.

Special thanks go to our good friend Ken Wilmore for his organizational efforts and our friends George Stadler and Earl Sinnamon for helping to assemble the large amount of valuable plant material for the auction.

This brings me to something entirely new which is an outgrowth from our annual plant auction. Our Board of Trustees and membership who always have been known to come up with terrific ideas when we needed them, have again produced wonderfully. A large committee of members has been working on this project for nearly 8 months. The total effort will be culminated during our first annual Horticulture House Fair which is to be held on May 3, 4, 5 at the Cherry Creek Shopping Center here in Denver. This will be the largest exposition of its kind ever staged in Denver. The entire program is at present under the expert and resourceful leadership of Mrs. Ed Honnen. Mrs. Honnen is not doing the job alone by any manner of means. Literally, a half a hundred or more volunteers have contributed their individual ingenuity and effort in preparation for this great event.

Our entire organization and the State of Colorado at large was saddened by the untimely passing of one of our most faithful and valuable friends, Mr. John Swingle.

A group of our members have organized a memorial fund to honor the memory of this wonderful man. The memorial is under the leadership of Dr. Morris Shubert, and he will gratefully accept any contributions you would like to make. The entire fund is to be set up as a student loan fund under the direction of Colorado A. & M. College for the benefit of deserving students.

There are many more individual efforts and committee programs that are

worthy of mentioning. Perhaps one individual's effort is noteworthy as an example to all of us. I can report to you that our good friend and Trustee, Clyde Learned, has brought in over 60 new members to our organization during the past year. Ken Wilmore and Mrs. Don E. Vestal also have been working for some time on a new method of increasing our membership, which is to be revealed in the very near future and should be of great interest to all of you when it is formally announced. To bring this report to a close, I want to tell you how much I have enjoyed the opportunity and privilege of serving as your President for the past two years. During the first year, I had to learn many things. During the second year I had to learn just as many more. Among you are the most wonderful people in the world. Youth is always desirable, but experience is imperative, and experience is what you have given me during the past two years. You are the people on whom I can always depend to get a task accomplished. For this and for your many wonderful volunteer services, I feel deeply grateful. I only hope that you will support our new president, Kenneth Wilmore, in the same manner that you have given me your assistance, help, and counsel during the past two years. Before I finish, allow me to make one other prediction. I think this Colorado Forestry and Horticulture Association has a very important destiny in this community and in our wonderful State. I know that you, the members and Trustees of this organization, will accept the challenge of putting this organization on a sounder financial footing than it has enjoyed during the past year. I also know that you will recognize the importance of bringing our message to the many young families living in the new home developments skirting the

outer periphery of our city and state. These are the people who can reap the greatest benefit from the compound knowledge and experience that we pass out through our monthly magazine. I will continue my active efforts for this organization. It is a program close to my heart and close to yours.



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GARDEN GATE**

You did not recognize it but this is the back gate to Horticulture House through which you have entered the premises a good many times. The vines on the fence are the white flowering *Clematis paniculata*, I believe. Inside of the gate against the fence are some plants of Jasmine, *jasminum nudiflorum*. This is one of the earliest flowering semi-vines, and a plant which deserves cultivation in a good many gardens.

—S. R. DeBoer.

"To raise flowers is a common thing,
God alone gives them fragrance."

—Chinese Proverb.

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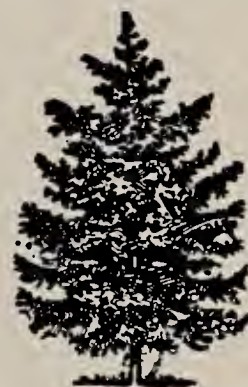
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SEASONAL SUGGESTIONS

April traditionally brings forth the early blooms and greenery that are positive proof of the awakening of spring. It's still a little unpredictable as far as freezing weather is concerned, but if the weather remains moderate, we can look forward to breath-taking shows of quince, forsythia, tulip, and other early flowers. If it turns cold, we can recall the splendor of April last year and be content to wait till May and June for excellent floral displays.

April is also our best month for planting trees, shrubs, evergreens, and lawns. This is undoubtedly the main reason that J. Sterling Morton proclaimed the first Arbor Day during April, 85 years ago. Remember that *Friday, April 19* is Colorado's official ARBOR DAY, but remember, too, that the planting of trees need not be restricted to one day, especially when we have an entire month that is suitable for such activity.

The word "planting" should be preceded by two additional "Ps." The first and most important is *planning*. In order to fulfill its purpose, a tree or shrub must be placed in the right location. The use and location of plant material can be arrived at only by careful study. Liberal use of pencil, paper, and eraser now will spare many a backache at a later date. The second "P" is *preparation*. It is essential that we, here in the Rocky Mountain area, go to extremes in preparing our soil before we plant trees, shrubs, grass, or anything else. Most of our soils are deficient in humus or organic matter, a vital component of good soil structure. In planting lawns, this lack can be rectified by the addition of at least two yards of manure, leafmold, or peat moss per 1000 square feet of area.

In planting trees and shrubs, incorporate a good quality of peat moss, at least 1/3 by volume of soil used to back fill. Also spend a little extra time and energy in digging. Make the hole large enough to receive the plant's root system without crowding or twisting the roots around one another. You'll find that the time and energy spent to do the job right will pay dividends in the long run.

Plan and prepare your annual and perennial flower beds, and your garden area, now. Many perennials can be safely moved with a good clump of earth. However, it's too early to be entirely safe in planting the colorful annuals. Wait until about the middle of May for placing them out of doors. Toward the latter part of the month, you can plant some of the early vegetables, such as radishes and lettuce.

Don't remove the mounds of earth from around your roses, and don't prune them yet. These chores can easily wait until next month when we're sure that the danger of a quick freeze is past.

Check your trees and shrubs for scale insects. Especially susceptible to such insects are elm, ash, lilac, and cotoneaster. Look them over carefully. If these pests are present, have them sprayed. Dormant oil sprays are most effective, but they have to be applied this month while these plants are still dormant.

If water is available, commercial fertilizers can be applied to lawns. Be sure to follow the manufacturers recommendations in applying these materials.

Check and repair your water hose and other garden equipment. Time spent putting these items in order now, can mean extra fishing time later in the season! —Pat

REMEMBER THE GARDEN FAIR, MAY 3, 4, 5.

Your lawn deserves the best

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Fertilizer Compound

**Fertilize NOW with this ONCE-A-SEASON
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The Green Thumb

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MAY, 1957

25 Cents

The Green Thumb

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May 3, 4, 5

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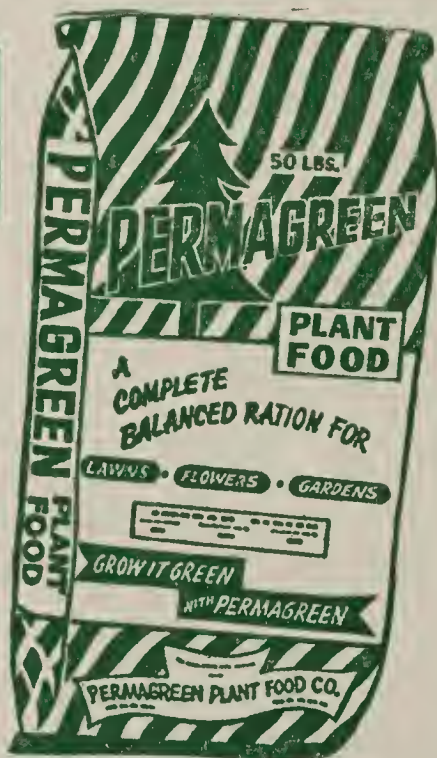
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The Green Thumb

Vol. 14

MAY, 1957

No. 4

Colorado Forestry and Horticulture Association

Organized in 1884



"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

OFFICERS

President	Kenneth Wilmore
Honorary President	Mrs. John Evans
Vice Presidents	Clyde Learned, Mrs. James J. Waring, Mrs. Alexander Barbour
Secretary	Mrs. Stanley Johnson
Treasurer	Lemoine Bechtold
Executive Committee	The above named officers plus Fred R. Johnson, Herbert C. Gundell
Assistant Secretary-Treasurer	Charles C. Fischer
Editor	Patrick J. Gallavan

Come to the Fair

The Garden Fair for the benefit of the Colorado Forestry and Horticulture Association will be held on May 3, 4, 5, 1957 on the corner of Columbine and First Avenue, east of Cherry Creek Shopping Center.

The entire area will be under four tents and large, free parking space will be available adjacent to the tents. Because of the tremendous growth of population in Colorado and adjacent states, there is a great need for more knowledge pertaining to beautifying the outside areas of homes; therefore experts will be on hand to explain how, when, where and what to plant.

The Denver area nurserymen are donating their fine stock to be sold at auction as their contribution to the Colorado Forestry and Horticulture Association which will include flats of perennials, annuals, potted flowers, roses, flowering trees and shrubs, fruit trees, evergreens, etc. Other things for sale will include everything pertaining to outdoor living such as garden furniture and equipment, painted flower pots, artificial fruit arrangements, dried flower arrangements, patio tablecloths, denim garden aprons, denim flower arranging kits, wrap-around denim patio skirts, wood totes, litterbug bags, decorative place cards and plaques, hand embroidered finger tip towels, drift wood accessories, fruit and flower prints, and a white elephant booth for flower containers, as well as many other items.

PATRICK J. GALLAVAN Editor MRS. HELEN FOWLER Librarian

MELANIE BROWN, Asst. Editor and Librarian

MR. AND MRS. CHARLES C. FISCHER, Custodians

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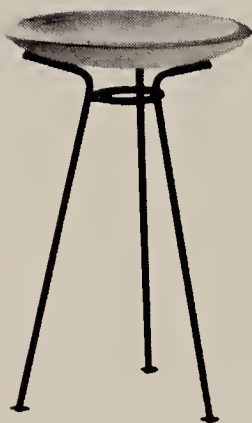
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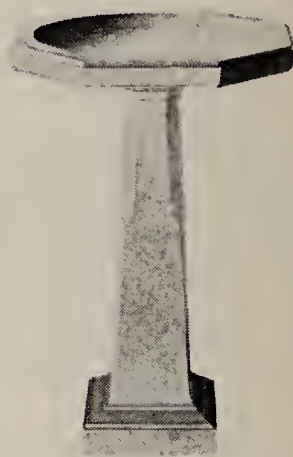
Terra Cotta accents for home or garden. Contemporary or traditional to fit your needs.



Rondo #849
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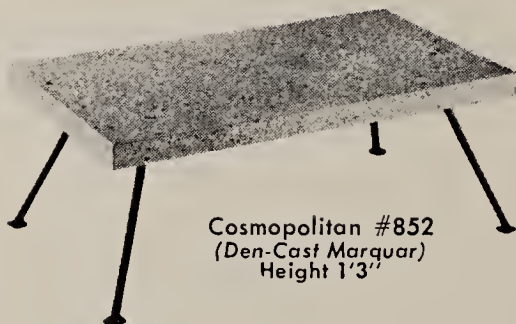
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Colorful...

All on wrought iron stands, with rubber tips, or steel compression pads for outdoor use.



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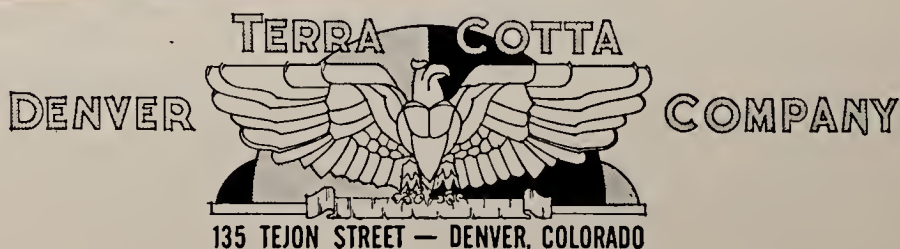
Cosmopolitan #852
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Height 1'3"



Petite Rondo #855
Height 20"

PERMANENT...

Many other styles available...
all in a fine choice
of colors.



MEMO

Calendar of Events

April 26-27 Colorado Council of African Violet Clubs, presents the second Annual Violet Show, "Violets of the Golden West," Mile High Transportation Center, 17th and Lincoln Streets, Friday, April 26, Noon to 9:00 p.m. Saturday April 27, 9:00 a.m. to 9:00 p.m. Open to the public. Anyone interested in growing African Violets may enter them for competition. All entries must be made from 4:00 to 8:00 p.m. Thursday April 25.

May 1 Botany Club meets the first Wednesday of each month, 7:30 p.m., Horticulture House.

May 3-4-5 GARDEN FAIR, opens at noon, May 3. East side of the Cherry Creek Shopping Center, First and Columbine Streets.

May 6 "Fun With Flowers," meets the first Monday of each month, 10:00 a.m., Studio No. 2, Woman's Club Bldg., 1437 Glenarm Place.

May 8 Organic Garden Club meets the second Wednesday of each month, 8:00 p.m., Horticulture House.

May 9 Denver Rose Society, meets the second Thursday of each month, Room 186, City and County Bldg., 8:00 p.m.

May 23 The Home Garden Club of Denver, presents their Spring Flower Show, "Around The Calendar," from 11:30 a.m. to 4:00 p.m., Denver Museum of Natural History, City Park.

Green Thumb program, 9:00 a.m., each Saturday, KLZ, 560 on your radio dial. Pat Gallavan, horticulturist, with Dale Morgan.

LOOK AND LEARN GARDEN VISITS

Mrs. Alexander L. Barbour, chairman, has completed arrangements for our annual tour of interesting gardens in the Denver area. The first one will be on June 12 in the Hilltop district, followed by two in July, July 10 in the Lakeridge-Bowmar area, July 31, Denver Country Club section; August 21 is the last one in Cherry Hills Heights, South University Blvd. and East Quincy Ave. As always, experts will be one hand to answer questions on gardening and on the identification of the plants. Tickets will be available at Horticulture House and at the Garden Fair for \$3.00 for the season or \$1.00 for a single tour.



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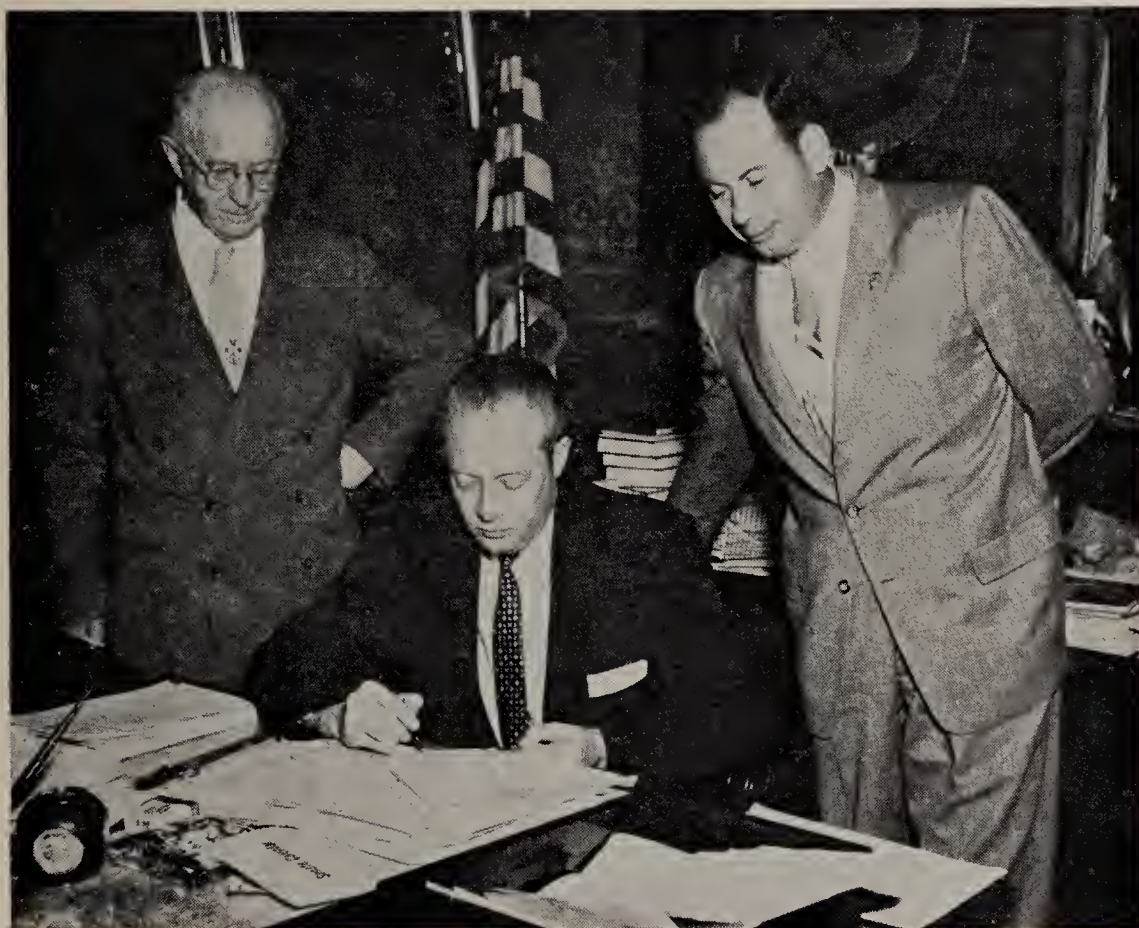
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With WILMORE**

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Governor Steve McNichols signs Arbor Day Proclamation presented to him by Fred R. Johnson (left) and Kenneth Wilmore (right). This important document was prepared by members of the Street and Shade Tree Committee as part of their program to encourage the planting of trees throughout the state of Colorado.



ERRATA

April Green Thumb issue, page 97. In article OFFICERS AND TRUSTEES OF THE BOTANICAL GARDEN FOUNDATION 1957, founding date for the gardens should be 1951.



Our stock of new—unusual!—and better plants is now very complete . . .

Come and get them as soon as possible while they are in their prime.

We have an especially nice lot of perennials.

Come and see our stock or send for our list.

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We Suggest
LIQUID FERTIL-
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Most Complete Line of Annuals and Bedding Plants
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Seeds - Trellises
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Garden Fair Arrangements

The arrangements illustrated here are samples of the superb compositions of artificial fruit and flowers which are being shown for the first time in Denver at our garden fair. These ornaments were originally displayed by the Pasadena garden club and proved such a sensation out there that we asked for the privilege of having them made for our sale. A committee obtained the fruit, which is exquisitely natural, from original sources in New York and the west coast, and has been working on the designs and containers for five months.

There will be a wide selection ranging in size from four inches to almost two feet; some with only fruit, others with both fruit and flowers. There are multi-colored combinations as well as mono-colored ones which can be used effectively for table decorations or for ornamentations in living rooms and drawing rooms. One small basket creation was bought as a special gift for a child's room. You'll find them lovely to look at and very smart to know about!

Photos by Ray Turnure.



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SHRUB,
BUSH
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IN**



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MICHIGAN PEAT**



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THE BEST IN

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OF HEMET**

**SHRUBS — EVERGREENS
FRUIT AND SHADE TREES**

PERENNIALS AND BEDDING PLANTS
FLOWER, VEGETABLE, AND LAWN
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FERTILIZERS — PAX, MILORGANITE, LOMA,
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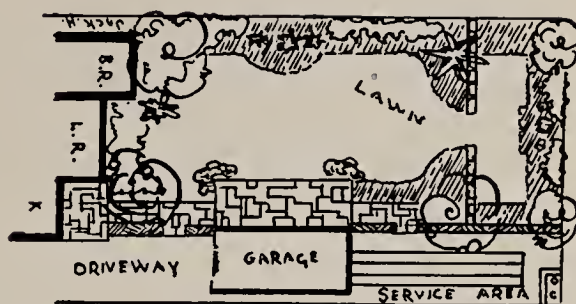
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TEN EASY STEPS TO LANDSCAPE YOUR YARD



BY FRANK H. KIRCH,

MEMBER OF THE ROCKY MOUNTAIN ASSOCIATION OF LANDSCAPE ARCHITECTS

Is there such a thing as "Ten Easy Steps to Landscape Your Yard"? Surely, if such a project is to be regarded in terms of actual work on the ground through the various stages of development, the homeowner will be aware of a definite strain either on his back or on his pocketbook.

However, if these steps are regarded as an organized guide to a landscape development, I am sure that the undertaking will seem somewhat less difficult. Therefore, let us consider the following as ten easy steps in landscaping home grounds:

1. *The Need of a Plan.* Few homeowners can afford to have all of their landscaping accomplished at one time. Usually, it is prolonged over a period of years, a tree or two being added one season, with shrubs and construction to follow at a later date. However, if a well-conceived plan is adopted, many mistakes can be avoided, and a lasting, more pleasing result, can be obtained. You, the homeowner, should endeavor to have a plan suited to your needs and not to try to copy a plan made for someone else for a different situation. A plan should express the individuality of the site, a feeling for the architecture of the house, and the personality of the owner.

2. *A Consideration of Existing Conditions.* An important step to be con-

sidered before undertaking your landscaping, is a survey of the existing features on or about your lot that might have a definite influence on your design. A tree could suggest a shaded terrace area which could become a basic part of the plan. Likewise, an undesirable view should warrant a screen planting. Grounds are to a considerable extent dependent upon those of your neighbors' and enough foresight should be used to see that they harmonize with the general feeling of the neighborhood. To be included in the survey of existing conditions, is the regard for orientation of your lot with its exposure for light and breezes. This recognition should play a large role in determining outdoor sitting areas and flower plots.

3. *Regard for Proper Grading.* The average gardener seems to take it for granted that he must have a level plot of ground on which to work. But interest and variety can be introduced into a yard by judicious changing of grade. Often, when a lawn has the usual slope away from the house, a definite change of grade can be brought about by the employment of a retaining wall or a defined slope. Proper grading can give the best setting to your garden, and all grading should be completed before planting or construction is undertaken. Also, proper drain-

age must be maintained in each instance.

4. *Division of Yard Into Areas.* Successful landscaping should be a pleasant blending of the uses of the home grounds. It should express the qualities of domesticity, usefulness and privacy. Generally, these qualities can be confined to areas broken down to include: a public area, or that visible to the passerby; the service area, including the driveway, delivery and laundry areas and work and storage areas; the private area, which is set aside for the lawn, play and garden areas. Perhaps one of the most important factors governing this arrangement is the everyday use of the grounds. Such chores as bringing home groceries, hanging out clothes, and putting away garden furniture are made easier by having convenient access to these places.

5. *The Circulation System.* Closely related to the area division scheme is the problem of circulation. The landscape plan must have a circulatory system. This means that a person can enter into and get about different areas easily. Circulation includes drives, walks, terraces, and the like, and is usually the structure upon which the landscaping depends. All areas of your grounds should be made accessible to one another by some means of the circulation system.

6. *Employment of Architectural Features.* Shrubs, flowers and grass are not the only elements that constitute a garden, for masonry, stone, and wood construction also must be regarded as making up a garden. These structural elements give definition of line and provide a welcome contrast to the softness of foliage. Do not overlook the use of pools and water with their sound and movement as well as the strategic placement of a piece of sculpture to serve as a focal point in your garden.

7. *Planting.* Planting should evolve from a basic design. Therefore, in

planting, the first approach should be *where* to plant rather than *what* to plant. The second step considers the type of plant which a certain area seems to require. It is only then that it is possible to select the plant that is suitable for the exposure, soil and climatic conditions and for the desired effect.

Lawn area and planting are closely related. The lawn should serve as a foundation for all planting effects as well as adding attractiveness to the entire grounds. Being well built after proper grading and soil preparation, the lawn becomes the most permanent of all features of the home grounds.

8. *Recognition of Important Principles of Composition.* The following principles are elements of a good landscape plan and should be kept in mind at all times: Repetition—repetition of certain combinations of plants or individual plants placed at regular intervals; variety—of textures, colors and shapes; unity—a tying together of all units and a submergence of individual identities; accent—a sudden contrast in form, texture, density, or color.

9. *Maintenance.* An important factor of any landscape undertaking is the problem of upkeep. Any good scheme can be destroyed by an untidy appearance. Be sure that you, as the chief gardener, will be able to keep up with the work that has to be done. Avoid isolated flower beds and ornaments that require hand trimming. Be careful in your selection of short-lived flowers and plant material that demand special soils or protection from climatic conditions. A maintenance hint is to have the proper tools to perform the job and to have a storage place for your equipment to keep it in good condition.

10. *Cost.* This is one step that can hardly be looked upon as being easy. However, certain practices can aid in cutting the costs of your project. The

selection of materials whose prices are determined by their availability should be given careful thought. Of course, a job well done in the first place will eliminate added costs of repairs and additions. Here again, the value of a plan is evident for you may proceed toward

a definite landscaping goal as money allows.

The above are ten easy steps for landscaping your home grounds. Although no physical effort has been exerted, it can be emphasized that sufficient thought and planning should be included in your landscaping operations.



FLOWERING SHRUBS VERSATILE IN USE

Though flowering shrubs for years have beautified home properties, home owners in general have little knowledge of their great versatility. Various species of flowering shrubs can be grown on dry ground, wet ground, fertile, or non-fertile ground. Some have highly desirable foliage colors as well as striking flowers. Many have beautiful berries or distinctive bark.

One of the common mistakes of the average home gardener, is to select flowering shrubs without regard to plant characteristics which make them even more interesting over a long period.

What makes the rose the nation's most popular flower is its large number of blooms, its versatility in relation to climate and soil, and its long flowering season. The camellia, a lovely aristocrat of the plant world, is limited only by the fact that it must be grown in the milder climates.

Consult with your nurseryman for beautiful shrubs which will grow well in dry areas. Forsythia, with its striking yellow blooms, will do well in dry areas and poor soils. There are hundreds of other shrubs which will do as well or better. It always is preferable to consult with your nurseryman, who can advise for your particular location. The hydrangeas and viburnums are very widely grown, as are euonymous, hibiscus, and pyracantha with its yellow, orange, or red berries in the fall. Azaleas and rhododendrons are outstanding in their beauty, but they require acid soil and a mild climate.

Practically everyone knows the barberries and the spireas which are versatile and widely planted.

Some of the best shrubs on neighbors' properties may offer a safe guide for the inexperienced gardener. Notice the better specimens of shrubs which flourish in every area. Pick out the ones you like the most and then describe them to your nurseryman, or, better, take a sample flower to him. Flowering shrubs number in the hundreds in every locality. Select them carefully for (1) flower (2) habit of growth and height for your purpose (3) foliage color and character (4) decorative berries in the fall and other dividends that many plants will have.



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LIST OF PLANT MATERIALS FOR THE ROCKY MOUNTAIN AREA

The plant materials composing this list are those plants generally considered safe bets for the average person. Those marked with an (*) do require extra care.

SHADE TREES

Silver (soft) Maple (*Acer saccharinum*)

Clean, medium fast growth, shallow roots, likes Colorado climate unless soil is too alkaline.

Northern Catalpa (*Catalpa speciosa*)

Attractive leaves, pods, and flowers. Drops pods and flowers.

Common Hackberry (*Celtis occidentalis*)

Very drouth resistant, has few pests, somewhat difficult to transplant.

Green Ash (*Fraxinus pennsylvanica lanceolata*)

Slow growing, has few pests, and is drouth resistant.

Common Honeylocust (*Gleditsia triacanthos*)

Drouth resistant, makes light shade, has thorns and pods.

Moraine Honeylocust

No thorns and pods.

American Linden (*Tilia americana*)

Symmetrical habit of growth, neat; young trees subject to sunscald.

*Norway Maple (*Acer platanoides*)

Slow growing, difficult to transplant, subject to sunscald.

*Schwedler Maple (*Acer platanoides schwedleri*)

Same as above, good spring color.

*Horsechestnut & Ohio Buckeye (*Aesculus spp.*)

Symmetrical shape, attractive flowers, deep roots, difficult to transplant.

*Bur Oak (*Quercus macrocarpa*)

Hardy, slow growing, most alkaline resistant of oaks.

*Red & Pin Oaks (*Quercus spp.*)

Slow growing, require special transplant care, good fall color.

*Littleleaf Linden (*Tilia cordata*)

Good clean tree, subject to sunscald.

*American Elm (*Ulmus americana*)

Easy to grow, but has many pests.

ORNAMENTAL TREES

Hawthorns (*Crataegus spp.*)

Washington, Downy, Cockspur. Attractive white flowers and persistent red fruits. (Other varieties available.)

Flowering Crabs (*Malus spp.*)

Many good varieties are available. Consult your nurseryman for best bets.

Purpleleaf Plum (*Prunus newport*)

Small tree or shrub. Very nice leaf color.

Russianolive (*Elaeagnus angustifolia*)

Very hardy and adaptable, persistent fruit, grey leaves.

*Mountainash (*Sorbus aucuparia*)

Neat, upright, attractive fruit in fall, very subject to fire blight.

*Weeping Birch (*Betula pendula*)

White bark, graceful shape, very difficult to transplant.

TALL EVERGREENS

Blue Spruce (*Picea pungens*)

A stiff symmetrical tree, seedlings vary from green to blue and silver, eventually becomes very large.

White Fir (*Abies concolor*)

Our most beautiful native tree, of much the color and habit of the blue spruce, but softer effect.

Bristlecone Pine (Foxtail) (*Pinus aristata*)

An outstanding pine for landscaping, pest free, slow growing, very picturesque.

Ponderosa Pine (*Pinus ponderosa*)

A coarse irregular native tree. Needs plenty of room. Drouth resistant.

Austrian Pine (*Pinus nigra*)

Similar in size and habit to ponderosa pine, but darker and denser.

*White Pine (*Pinus strobus*)

Graceful habit of growth and soft green needles. Subject to winter burn.

*Limber Pine (*Pinus flexilis*)

Our native white pine, slow, irregular growth, not readily available.

MEDIUM HEIGHT EVERGREENS

Pinyon Pine (*Pinus edulis*)

Irregular, round in habit, likes warm, dry location. May be trained to stay small indefinitely.

Swiss Mountain Pine (*Pinus mugo*)

Considerable variation in height depending on source of supply. Can be kept in bounds by trimming.

Rocky Mountain Juniper (*Juniperus scopulorum* var.)

East slope native, tall and symmetrical, many popular grafts available such as "Pathfinder," "Sutherland" and "Hills Silver."

Oneseed Juniper (*Juniperus monosperma*)

Generally rounded, often many stemmed, tolerates hot dry conditions.

Eastern Redcedar (*Juniperus virginiana* var.)

Native eastern is generally poorer in color and hardiness compared to our native Rocky Mtn. Juniper, however a number of good grafts such as "Can-aert," "Dundee," "Cypress" and others are available.

LOW GROWING EVERGREENS

Pfitzer Juniper (*Juniperus chinensis*)

Best all around evergreen of this size. Rapid feathery growth, virtually pest free. A number of good grafts available.

Savin Juniper (*Juniperus sabina*)

Well known but not as good as Pfitzer. Becomes leggy with age.

Tammy Juniper (*Juniperus sabina tamarix*)

Dense, rounded habit of growth, fine winter color. The best low growing juniper.

LARGE SHRUBS 8' to 12'

Amur or Ginnala Maple (*Acer ginnala*)

Small tree or shrub, very good for fall color.

European Euonymus (*Euonymus europeaus*)

Large upright shrub, nice fall color, fruits persist through winter.

Althea, Rose of Sharon (*Hibiscus syriacus*)

Needs protection, tall, slim shrub, hollyhock-like flowers.

Seabuckthorn (*Hippophae rhamnoides*)

Small tree or large shrub, silvery leaves, orange berries in fall. Drought resistant.

Red Honeysuckle (*Lonicera zabeli*)

Small, but numerous deep red flowers. Very attractive.

Purpleleaf Plum (*Prunus cistena*)

Leaves purple all summer, useful for contrast.

Nanking Cherry (*Prunus tomentosa*)

Large attractive shrub, beautiful pink or white blossoms and red edible fruit.

Golden Elder (*Sambucus nigra aurea*)

Large shrub—golden leaves, good for contrast. Can be kept in bounds by trimming.

Persian Lilac (*Syringa persica*)

Leaves and stems smaller than common, many flowered head, very fragrant.

Common Lilac (*Syringa vulgaris*)

Dense vigorous upright growing lilac, known to everyone. Flowers very showy lavender.

Hybrid Lilacs (*Syringa spp.*)

Double flowered or single, available in many colors—white, red, pink, blue, violet, purple. Consult your nurseryman.

Wayfaringtree (*Viburnum lantana*)

Slow growing shrub, flatheads of white flowers, slow color change in fruit interesting.

Highbush Cranberry (*Viburnum opulis*)

Large flat clusters of white flowers, red persistent fruits.

Snowball (*Viburnum opalis sterile*)

Large clusters of white flowers, subject to aphid attack.

MEDIUM SHRUBS 4' to 8'

Butterflybush (*Buddleia davidi var.*)

Very showy flowers on upright spikes, in late summer. (Dies back to ground.)

Japanese Quince (*Chaenomeles japonica*)

Brilliant red flowers early spring. Slow growing but attractive.

Redtwig Dogwood (*Cornus stolonifera coloradensis*)

Brilliant red twigs, good for contrast, especially with evergreens.

Peking Cotoneaster (*Contoneaster acutifolia*)

Clean, nice shrub, black berries persist all winter.

Winged Euonymus (*Euonymus alatus*)

Red and green corky bark, brilliant fall color, makes a good specimen.

Forsythia (*Forsythia intermedia spectabilis*)

Nice upright shrub, a profusion of yellow bloom (when not killed by early frost).

Common Rosemallow (*Hibiscus palustris*)

Kills back each fall like perennial, beautiful hollyhock-like flowers, white and red.

Beautybush (*Kolkwitzia amabilis*)

Nice arching habit of growth, attractive pink bell-shaped flowers in spring.

Regels Border Privet (*Ligustrum obtusifolium regelianum*)

Valuable as a specimen bush, fragrant flowers and jet black berries.

Mockorange (*Philadelphus lemoinei*)

Semi-double, fragrant white flowers throughout summer, needs some protection.

Flowering Plum (*Prunus tribola, multiplex*)

Beautiful double pink flowers in early spring.

Shrub Roses (*Rosa spp.*)

Shrub-like roses, many varieties available, best for this area, Austrian Copper, Harrisons Yellow, Grootendorst, Hugonis.

Vanhoutte Spirea (*Spirea vanhouttei*)

Probably most popular of shrubs, beautiful display of white flowers.

SMALL SHRUBS (up to 4 feet)

Japanese Barberry (*Berberis thunbergi*)

Dwarf shrub, thorny stems, brilliant red berries in fall.

Redleaf Barberry (*Berberis t. atropurpurea*)

Leaves remain red through summer, attractive, but not completely hardy.

Peegee Hydrangea (*Hydrangea paniculata, cl.*)

Beautiful in bloom. Kills to ground, but in shaded, protected place will bloom each year.

Mockorange (*Philadelphus lemoinei*)

Dense, symmetrical shrub, covered with white flowers in spring.

Dwarf Ninebark (*Physocarpus opulifolius, cl.*)

Similar to bridal wreath, but lower and less spreading, white flowers in spring.

Ferreri Cinquefoil (*Potentilla ferrerii*)

Yellow flowers early to late summer, silvery green foliage.

Flowering Almond (*Prunus glandulosa, cl.*)

Low shrub valued for its white and pink showy flowers.

Florabunda Roses (*Rosa spp.*)

Hardy, everblooming, mostly short shrubs. Many varieties available, consult your nurseryman.

Froebel Spirea (*Spirea bumalda cl.*)

Dwarf, sometimes winterkilled but comes back in time for late summer bloom.

HEDGE MATERIALS

Most shrubs that stand clipping can be trained as hedges—these four listed are most commonly used.

English Privet (*Ligustrum vulgare*)

Best privet for this area, dark glossy green leaves, makes good hedge when properly trimmed. Medium height.

Lodense Privet (*Ligustrum vulgare, cl.*)

Dwarf, good for low hedge, requires little maintenance.

Russianolive (*Elaeagnus angustifolia*)

Silver leaves, makes informal, tall hedge, requires considerable trimming to maintain formal hedge.

Chinese Elm (*Ulmus pumila*)

Requires heavy maintenance, but makes a fair tall hedge, becomes leggy with age.

VINES

Everblooming Honeysuckle (*Lonicera heckrottii*)

Flame-red trumpets, lined with gold, continuous bloomer. Needs some protection.

Halls Japanese Honeysuckle (*Lonicera japonica halliana*)

Deep green foliage held well into winter, fragrant white flowers. Useful for fences or ground cover.

Silverlace Vine (*Polygonum auberti*)

Hardy, fast-growing vine, covered in summer with small white flowers.

Jackman Clematis (*Clematis jackmani*)

Popular large flowered clematis. Colors: purple, red, blue, and white. Needs some protection.

Engleman Ivy (*Parthenocissus engelmani*)

Common vine, clings to rough walls, becomes rank and somewhat of nuisance.

Boston Ivy (*Parthenocissus tricuspidata*)

The neatest and slowest growing of ivies. Excellent fall color. Hardy only on north or shaded places.



The Morton Arboretum, at Lisle, Ill., not far from Chicago, which now has 1200 acres of ground, has included in its present expansion program, 400 additional acres of farm land and a new laboratory building, with lecture room, offices, greenhouses, and workrooms. Its chief function has been educational. To that end, 25 miles of trails are laid out and 15 miles of roads. Lectures, walks, tours, photographic contests and clever "games" all contribute to help interest both grown-ups and children.—MWP.

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TEN FAVORITE LILACS

BY JOHN C. WISTER

Choosing as few as ten or so favorite varieties of lilacs is always a matter of guesswork. One can pick, of course, from the hundred varieties selected by the Survey Committee of the American Association of Botanical Gardens and Arboretums in 1941 and in 1953. These were selected by a country-wide group of devotees to this wonderful garden shrub, from the more than five hundred varieties grown in this country. A good case could be made for almost any ten of the hundred recommended by the Committee, but each person of course has particular favorites. Sometimes this depends on personal tastes as to the form of the flower or the type of spike, but perhaps it is more often decided by the particular variety the person concerned has seen at its best in some particular year.

I feel strongly that in any collection there should be enough white varieties to act as contrast to the darker colors, and to lighten the general effect. For this reason, in any collection of ten, I would certainly have two whites or, perhaps even three or four. The outstanding two single whites are Vestale, which is early, and Mont Blanc, which blooms a little later. The voters of the survey did not agree with me, but I still think the best double white is the old and tried Ellen Willmott.

The greatest contrast to white varieties of course comes from the deep-toned purple flowers. For general use, and in adaptability across the country, I do not know that any variety really surpasses the old Ludwig Spaeth. Night is darker and Mrs. W. E. Marshall

Dr. Wister is director of the Arthur Hoyt Scott Horticultural Foundation, Swarthmore, Pennsylvania. He has written numerous nationally recognized books and articles on horticulture, and is the editor of "Lilacs for America," our newest (1953) survey of lilacs.

redder, but they are not generally known and the first named is sometimes shy in bloom.

Another important contrast comes between the bluish and pinkish varieties. I would pick Decaisne on the bluish side and either Lucie Baltet or Macrostachya from among the pinkish varieties. Lucie Baltet is a slow grower and stays reasonably small which is an advantage in a small garden. Under some conditions its pink becomes dingy. Macrostachya is lighter and clearer. It fades out after the first few days to nearly white and then gives the effect of another white variety.

There are a number of deep-toned varieties classified officially as violet rather than purple, but these color classification names cover quite a multitude of sins and should not be taken too literally. In this violet section, De Miribel is perhaps the most outstanding in its bluish-slate color and in its late bloom. Cavour can be substituted if nurseries do not have De Miribel available.

There are many varieties which open up into quite a deep red purple and in hot weather quickly fade almost to the color of the common lilac. Congo is perhaps the best known of these. I have no hesitation in recommending it even though I know that it is frowned upon in most quarters because it fades so quickly. Mme. F. Morel is another of my top favorites in spite of its habit of suckering and spreading all over the garden. Its spikes are seldom exceeded in size.

Most lilac fanciers will disagree with

me when I stand up for the smaller flowers of the common lilac, the so-called wild form of *Syringa vulgaris*. Of course what we have in gardens is not really the wild form. It is the result of the process of selection by gardeners during the last three or four centuries. But what the nurseries sell under the name is a most valuable, free-blooming plant. The flowers are lovely and of great fragrance. I do not think it should be omitted from any list however small. Many experienced growers, however, would recommend the variety Maurice Barres in its place. I'd like to have both!

It will be noted that in this small selection I have, with one exception, selected single varieties. Of course this is because I like them best. If another double is particularly wanted I would recommend either Henri Martin or Victor Lemoine, both of which have the general lilac coloring of the common lilac. I do not personally care too much for the so-called double pinks and am even more critical about, and do not grow any of, the double purples.

This list is presented with no pre-

tense that it is better than any other list made by any observant gardener who has studied varieties for a few years. In fact it is probably not as good as one that could be made by a person familiar with the behavior of varieties in the special climate of the Denver area. Any list made by outsiders should always be checked by persons with greater local knowledge. But I have given recommendations based on seeing the behavior of the varieties chosen under widely different conditions in many Atlantic coast states from Maine to North Carolina and west through all the midwestern states as far as Iowa, Nebraska and Minnesota. And, they are all beauties that I would like to rave about in many additional pages in this magazine! If the new Denver Botanical Garden does not have them all, I will be glad to supply propagating wood.

Years ago D. M. Andrews in Boulder offered many of these. Nowadays Denver and Rocky Mountain gardeners may have to go to specialists further east in Minnesota and in Michigan. The editor of this magazine will, I am sure, be glad to make recommendations of several of these nurseries.



HOW STRAWBERRIES GOT THEIR NAME

The name evidently appeared in old English vocabularies as "strewberry." "Straw" is the obsolete past-participle of "to strew." This describes the growing habit of the strawberry — the runners stray and that is evidently how the strawberry got its name.

— from *Growing Flowers* by John H. Tobe.

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PERENNIALS FOR COLORADO

Compiled by George A. Amidon

TALL VARIETIES FOR BACKGROUND PLANTING

Fernleaf Yarrow (<i>Achillia filipendulina</i>)	Aster (hardy, numerous kinds)
Dropmore (<i>Anchusa azurea</i>)	Giant Pacific Delphinium (<i>Delphinium</i>)
Daylilies (<i>Hemerocallis</i>)	Rosemallow (<i>Hibiscus</i>)
Double Hollyhocks (<i>Althaea</i>)	Bergamot (<i>Monarda</i>)
Oriental Poppy (<i>Papaver orientale</i>)	Sagebrush (<i>Salvia pitcheri</i>)
Meadowrue (<i>Thalictrum</i>)	Redhotpoker (<i>Tritoma</i>)

MEDIUM HEIGHT FOR MASSING IN SEMI-BACKGROUND

Monkshood (<i>Aconitum</i>)	Camomile (<i>Anthemis</i>)
Columbine (<i>Aquilegia</i>)	Butterflyweed (<i>Asclepia</i>)
Bleedingheart (<i>Dicentra</i>)	Gasplant (<i>Dictamnus</i>)
Blanketflower (<i>Gaillardia</i>)	Babysbreath (<i>Gypsophila paniculatum</i>)
Sneezewort or Sneezeweed (<i>Helenium</i>)	Flax (<i>Linum</i>)
Loosestrife (<i>Lysimachia</i>)	Lupine (<i>Lupinus</i>)
Beardtongue (<i>Penstemon</i>)	Peonies (<i>Paeonia</i>)
Iris, Tall Bearded (German, Japanese, Siberian)	Balloonflower (<i>Platycodon</i>)
Phlox (many kinds)	Sea Lavender (<i>Statice</i> , <i>Armeria</i> , or <i>Limonium</i>)
Painted daisies (<i>Pyrethrum</i>)	Veronica (several kinds)
Globeflower (<i>Trollius</i>)	Chrysanthemums (tall kinds)
Regal, Madonna, Tigerlilies (<i>Lilium</i>)	

LOW BORDER AND ROCK GARDEN PERENNIALS

Stonecress (<i>Aethionema</i>)	Bugleweed (<i>Ajuga</i>)
Madwort (<i>Alyssum</i>)	Windflower (<i>Anemone</i>)
Heartleaf Bugloss (<i>Brunnera macrophylla</i>)	Thrift (<i>Armeria</i> , or <i>Statice</i>)
Silver King (<i>Artemisia</i>)	Sweet Woodruff (<i>Asperula odorata</i>)
Asters (dwarf kinds)	Carpathian Bellflower (<i>Campanula carpatica</i>)
Carnations (hardy)	Chrysanthemums (cushion)
Lily-of-the-valley (<i>Convallaria majalis</i>)	Hosta (<i>Funkia</i>)
Fragrant Pinks (<i>Dianthus</i>)	Sunrose (<i>Helianthemum</i>)
Avens (<i>Geum</i>)	Forget-me-not (<i>Myosotis</i>)
Coral Bells (<i>Heuchera</i>)	Sweetwilliam Phlox (<i>Phlox divaricata</i>)
Iris (dwarf)	Leadwort (<i>Plumbago</i>)
Moss Phlox (<i>Phlox subulata</i>)	Primrose, hardy (<i>Primula</i>)
Woolly Yarrow (<i>Achillea tomentosa</i>)	Stonecrop (<i>Sedum</i>)
Jacobs ladder (<i>Polemonium caeruleum</i>)	Speedwell (<i>Veronica incanna</i>)
Lavendercotton (<i>Santolina</i>)	Hungarian Speedwell (<i>Veronica latifolia</i>)
Meadowrue (<i>Thalictrum</i>)	Véronica (new English varieties)
Periwinkle (<i>Vinca minor</i>)	Violas
Astilbe (sometimes falsely called spirea)	
Violets	

PERENNIALS FOR MOIST SHADY LOCATIONS

Heartleaf Bugloss (*Brunnera
macrophylla*)Rocky Mountain Columbine (*Aquilegia*)Lilly-of-the-valley (*Convallaria majalis*)Grape Hyacinth (*Muscari*)Primrose (*Primula*)Monkshood (*Aconitum*)Bleedingheart (*Dicentra*)Hosta (*Funkia*)Double Buttercup (*Ranunculus*)Hungarian Speedwell (*Veronica
latifolia*)Periwinkle (*Vinca minor*)

UNDERSTAND YOUR LANDSCAPE CONTRACT

Landscaping a home is fun for most people, but there is a small group of homeowners whose experiences have taken a lot of the fun out of it. They are the ones that have had someone, who professed to be a landscape specialist representing a nursery firm, go over the place and advise them what to buy.

Take the case of the "landscape expert" who presented a contract for needed planting materials to Mr. Homeowner for him to sign. The plants were to be delivered in two lots, part in the spring and part in the fall. Mr. Homeowner didn't know what the plants looked like so he was shown pictures of the mature shrubs and trees in full color. In signing, he agreed that if he didn't take all the plants he would, nevertheless, pay 40 percent of the contract price for those he did not use. When the first batch of plants was put in, and had no resemblance to the gorgeous pictures he had been shown previously, Mr. Homeowner wanted to call the whole deal off. But paying 40 percent for that privilege seemed too steep a price. Much of the fun had gone out of his venture. Mr. Homeowner wished he had read the contract carefully—that 40 percent clause was plain enough! Why hadn't he asked for a copy of the contract and read it over with the "specialist"?

Practically all nurseries that provide landscape services for clients are thoroughly reliable, and fortunately instances like the above are not common.



From the Saracens, the Crusaders learned grafting which they introduced into Europe as well as an appreciation for the civilized luxury of gardens—also learned from the East.

MARSOLEK'S GARDEN & FLOWER
CENTERGARDEN SEEDS—Northrup, Barteldes,
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ANNUALS IN DENVER'S PARKS

BY FRANCES NOVITT

Every year we plant over 150,000 annuals throughout the Denver parks. There are usually about 40 different kinds, and certain kinds have many different varieties—petunias, marigolds, and zinnias, for example.

An annual has to be really outstanding to prove itself in the parks. There are few opportunities for the overworked park men to baby along touchy plants which could be easily provided with special care in a private garden. For that reason there are some annuals that can never be used. But many of our favorite annuals are really wonderful! And they are just as wonderful when planted in the home garden. We used a good many fibrous-rooted begonias. They, along with geraniums, provide the only early color in our annual beds, because both bloom profusely at planting-out time which is around Decoration Day. Pink Radio and Christmas Cheer are tall begonias, 15 to 18 inches, with deep pink blossoms; Silverwings is their white counterpart. Carmen, an intermediate one, and a great favorite, has rich bronzy-red leaves and bright pink flowers; Indian Maid also has bronzy foliage, but orange flowers; these are both about 10 to 12 inches tall. Our best geranium, currently, is Radio Red, a vigorous grower with rich red abundant bloom.

I can scarcely imagine an annual planting without marigolds. Tremendous improvements have been made in recent years, and they now come in a huge assortment of sneeze-free gorgeous colors with handsome foliage, in various heights and flower types, and with a long blooming period that does not "go out" in mid-August as the old varieties were apt to do. Of the dwarfs, our greatest favorite in the parks is Cupid Yellow, which is 9 to 12 inches high, a perfect little mound of big dou-

ble lemon-yellow blossoms, which looks truly wonderful until heavy frost. Its new brothers are Cupid Orange and Cupid Gold. If you want something really striking try alternating it with Blue Ageratum as a border planting.

But there are other excellent dwarf marigolds too: Spry, Yellow Pygmy, Butterball, and Lemon Drop are just a few. Naughty Marietta, Flash, Rusty Red, and Happiness grow a little taller, 14 to 18 inches. Classed as tall are Glitters and Mammoth Mum, with enormous double yellow flowers like football mums. All of the varieties mentioned are very fine.

Petunias are even more indispensable for summer bloom. Every year new varieties are presented, and some of our very best bedding displays are produced by petunias. In the parks we have found that the type known as hybrid multiflora gives the best show. These hybrids are not the very large flowered doubles; they produce medium-sized, plain-edged flowers and have a rather erect growth habit and are unbeatable for a solid mass of long lasting color. The following are pinks: Silver Medal, a soft salmon, about 14 inches high; Pink Sensation, a light silver pink, a giant grower, sometimes reaching 24 to 28 inches; Linda, like Silver Medal, but lower; and Cheerful, a clear salmon, 12 to 14 inches. Last summer, Brilliancy was the finest new red—a highly intense cerise-rose, which could be seen for a long distance. Comanche, Tango, Flirt, and Apache are all good, and so is an old stand-by, Celestial Rose, a deep, deep pink. Of the whites, the best dwarf is Igloo, fine for borders, about 9 to 10 inches tall; Popcorn is 12 inches tall, with huge dazzlingly-white flowers—a very fine white petunia. The best tall whites are White Queen and Snowstorm from 14 to 18 inches tall.

Until recently, we used to plant quantities of *Zinnia linnearis*, a single-flowered orange about 12 inches tall, with good light gray foliage. It was really outstanding, and the brilliant color would carry for a great distance, but something happened. One year it did poorly everywhere, and after a repeated failure the following year, we stopped planting it. However, it would be worth trying again because it was a very fine annual. In concluding this discussion on zinnias, I want to mention *Sanvitalia*, a type of creeping zinnia. This never gets much over four or five inches high, but one plant will spread by the end of summer into a mat over two feet in diameter, with little single yellow flowers with black centers.

The old fashioned sweet alyssum is one of the most outstanding low white annuals; we use Carpet of Snow, and contrast it with Royal Carpet, a new purple one. Other low annuals we use include Blue Ageratum, Dwarf Gomphrena Buddy, Lobelia, Blue Gown, and Crystal Palace; *Nierembergia hippomanica* (light blue), and Purple Robe (dark blue); and dwarf annual Phlox Glove mix.

Some of the most colorful plants we use do not bloom. There are certain foliage plants which we consider indispensable; the coleus varieties; the centaureas such as *Centaurea candidissima*, *Centaurea gymnocarpa*, and *Cineraria maritima* Diamond; *Pyrethrum aureum* (which does produce an insignificant white daisy, a poor show compared to its bright yellow-green foliage); and the *Pennisetums*, or

ornamental grasses; *P. longistylum* has arching white plumes, and *P. ruppelianum* has taller pink plumes reaching perhaps 30 inches.

Snapdragons are good bedders. We use intermediate ones, because the tall ones fall over from their own weight. Yellow Jacket, Cherry Red, Rosalie (pink), Pinkie, and Orange Shades are much used.

Hardy verbenas must not be omitted: Giant Salmon Queen, *Rosea stellata* (deep pink with white eye), and Pure White. These are all grandifloras, low growers under 12 inches, but there is another variety of verbenas we depend on through the years, that is *Verbena nevosa lilacina*, an upright about 12 inches high, with deep lilac flowers, and a love for hot dry weather.

And last but by no means least are zinnias, for summer show. They germinate quickly, grow quickly, bloom early and long. We use nearly all the colors of the dahlia-flowered giants, which so far seem the best type of giants for the parks because they are the showiest from a distance. Canary Bird, Crimson Monarch, Dream (orchid-lavendar), Exquisite (pink), Golden Dawn, Meteor (wine-red), Oriole (orange and gold), and Scarlet Flame are the best. Colors still lacking in zinnias are a really fine purple, and a true dazzling white. The intermediate ones, liliputs, pompoms, pumilas, and miscellaneous varieties such as Persian Carpet and Peppermint Stick, all contribute much color to summer, and perhaps in a private garden, even more so because the very size and stiffness of the giants limits their use in a small space.



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THOUGHTS ON PATIO TERRACE DESIGN

BY CURT POLLARI, LANDSCAPE ARCHITECT,
DEPARTMENT OF PARKS AND RECREATION

Today's casual type living demands an area where the out-of-doors blends amiably with the architectural feeling of the house. Whether you call this area a patio or a terrace, it will serve the same purpose. In the Rocky Mountain region, with its invigorating climate, we are more fully able to appreciate nature's beauty, yet we are comforted by the amenities accomplished through architectural progress. In this small area, nature and man's ingenuity meet for the benefit of man's aesthetic being.

There are many qualities which we, as individuals, wish to incorporate into this area, but generally it must be of sufficient *size* to accommodate a number of people and yet retain a personal appeal when occupied by only a few. It must also be *oriented* to allow access to the garden proper with easy access to the house. Further, it must be oriented to take advantage of summer breezes and yet protect the occupants from fall and winter winds. It must catch the low winter sun but hold the summer sun at bay for a cool retreat during the heat of the day.

The third factor in patio-terrace design is that of aesthetics. As Eckbo has stated any number of times, "know-how" is a seeming inherent quality in most Americans, but "know-why" is quite another matter. Too few appreciate the qualities of pictorial composition — line, rhythm, contrast, texture, value and balance. Unfortunately, these aesthetic qualities are not inherent in all individuals in the same degree. This is not to say that we should not attempt to solve our own problems; rather, we should not be so easily dis-

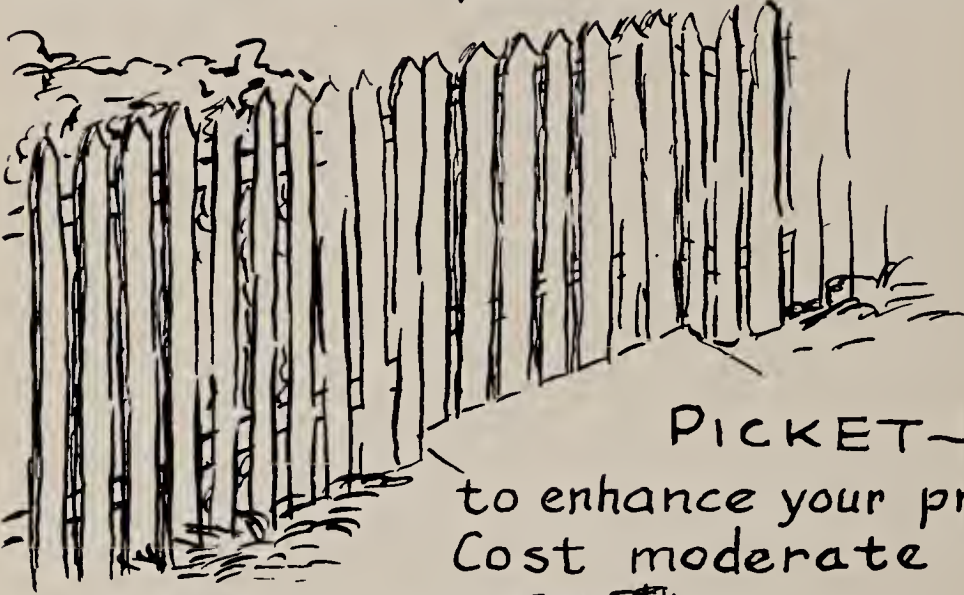
couraged. It is our own lack of contact with attractive solutions to these problems which makes us dull and prone to acceptance of mediocrity. Also, the creation of a worthwhile garden (for those who appreciate it) represents no little expense in time and money. For those with limited finances, it is often difficult to decide whether the capital outlay is justified by the aesthetic qualities.

As for the plan, the owner-designer must decide whether the composition (three dimensional) has a center of interest, whether it expresses rhythm through its lines, textures, and values, whether it is in balance (proportion), and whether the project contains complimentary contrast of line and shape.

The two major types of material utilized (plant life and structurally lifeless material) must be analyzed constantly. Because we rarely adhere to the classic concepts of formalism and naturalism in landscape design, but rather follow portions of each, it behooves us to create an area that is regulated by the stability of architecture and is further embellished, yea, features, one plant to the advantage of architecture. A common plant can be lifted from oblivion through this synthesis with architecture.

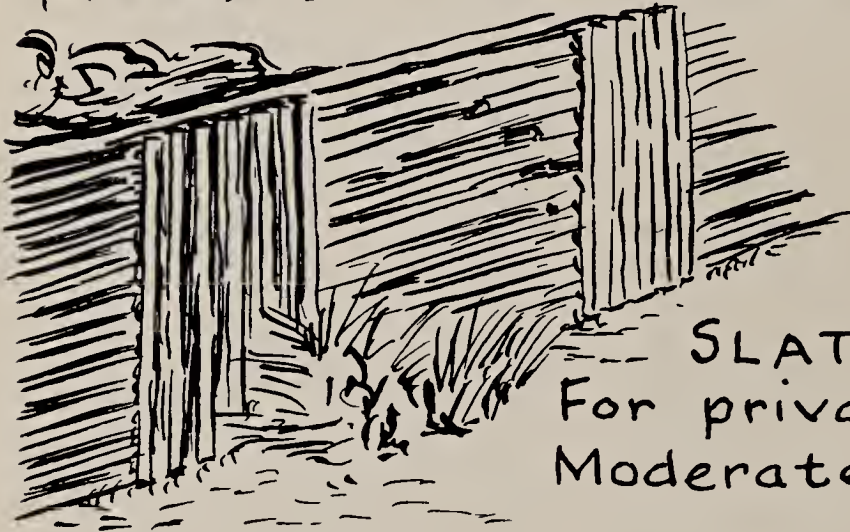
Through adherence to creativity and sensitivity in combining all, or one of, the plants which will grow in your patio-terrace environment, and in utilizing the multitude of architectural solutions, you (through paper mistakes first) can create an area adjacent to your house that combines the fruits of both yours and nature's efforts for mental and physical enrichment.

SOME NOTES ON FENCES—



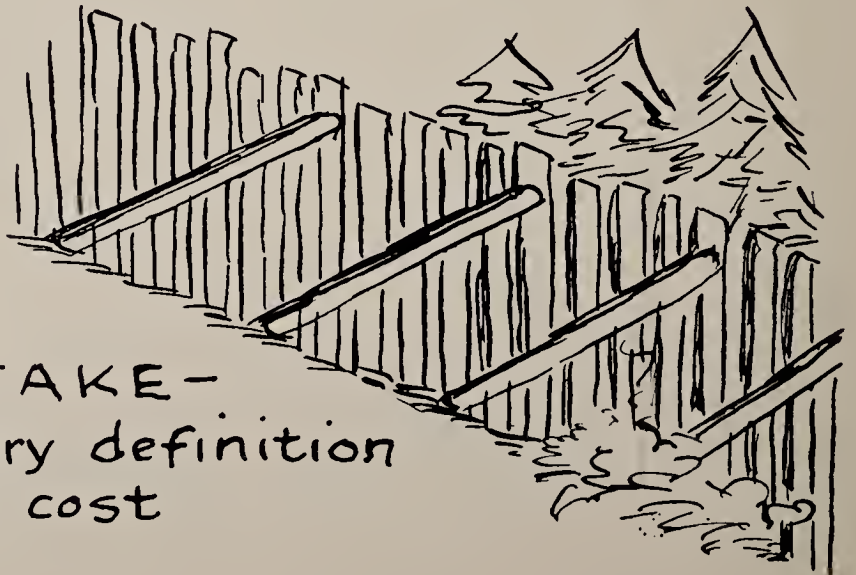
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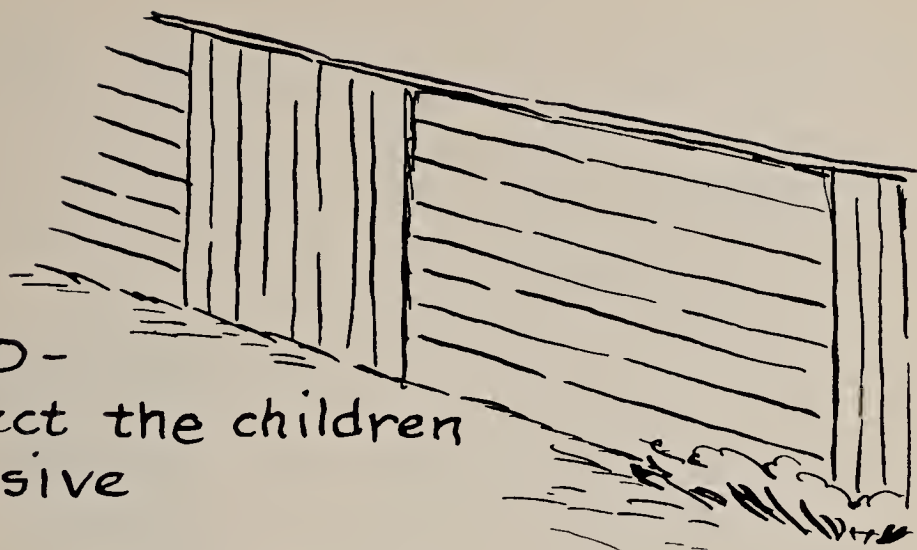
SLAT—

For privacy
Moderate cost

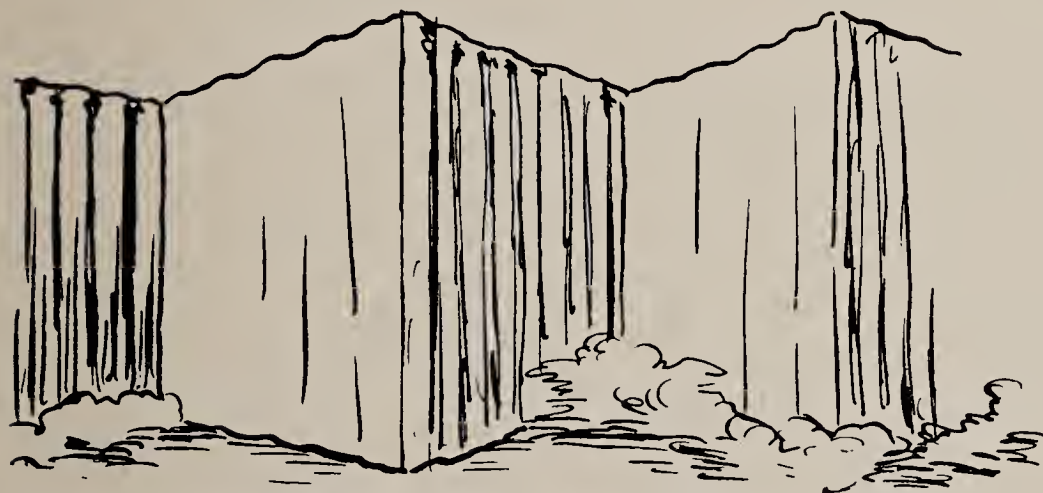


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GERANIUMS UNLIMITED

By MICHAEL ULASKI



Probably no other single flower has held its popularity as long as the geranium. Today it still is one of the most important flowers in porch boxes, urns, and sunny flower beds. And many new varieties in a wide range of colors have increased the popularity. However, to grow geraniums successfully, proper cultural practices are important.

To begin with, if you are to have good strong cuttings that will result in healthy plants, select sturdy stock plants. Neglecting this, the new plants will be scrubby. Diseased or stunted ones should be destroyed. A good policy is to take cuttings from your garden just before frost time, which in our climate can be any time after Labor Day, at the same time that you bring the old plants indoors. A geranium cutting need not be taken at the node (joint of a stem) but leave as many leaves on it as possible. Geraniums and callas root equally well whether the cutting is taken directly below a node or at another place along the stem. Cuttings taken in the fall should produce a batch themselves by December. Do not forget to shade these new slips for a week or ten days. Put the slips or cuttings directly into a two and a half inch pot filled with good clean soil. No fertilizer should be used. If space is at a premium, put several of these potted

slips in a narrow box fitted to your window sill with some fine sand or sphagnum moss in the bottom to facilitate watering.

Watering

There have been opinions concerning amount of water to give geraniums. Some think that the soil should always be in a moist condition. Others feel that the older theory of keeping geraniums on the dry side is best. Those who believe the latter maintain that this method makes for stronger and huskier plants. My observations are that plants that are reasonably moist at all times, grow a little faster. However, this growth tends to be lanky. Plants kept drier seem to bloom more evenly and are bushier. One of the tricks in producing good geraniums is to give them ample growing space, for crowded conditions will also produce tall, scrawny, or "leggy" plants. Pinching off shoots for fullness is unnecessary when these flowers are properly spaced for branching then takes place naturally.

Potting

After the plants have developed a good root system, it is best to repot them in three- or four-inch containers.

Soil Mixtures

Recommended soil mixes are almost as varied as geranium varieties. However, the best soil mix is one part

well-rotted manure to three parts sandy loam with an addition of a little superphosphate. If the soil is on the clayey side, white sharp sand should be used to lighten it.

Diseases

Geraniums, like most other plants, have their diseases and viruses. One of the most serious is leaf curl. This is worst during dark days. The best control is to get rid of the plants. Fusarium wilt (a fungus disease) is serious in some areas. Lower leaves turn yellow and finally die. The stem dies from the bottom up until only the tip remains alive. Then it too finally succumbs. This trouble increases with warmer brighter days. Again, the only control is to get rid of infected specimens and sterilize all tools that have come in contact with them. Stem rot is usually easily controlled. Plants may be sprayed with one of several copper fungicides.

Then there is a virus that retards plant growth, decreases blooming, and makes the geranium just generally unattractive. For this there is no control either except to weed out the defective ones. Leaf spot and similar diseases are minor and much can be done to control them by careful watering. But don't be frightened by these various diseases. Geraniums are hardy plants that any one can grow.

Culture

The culture of geraniums that are planted outside in open flower beds is of great importance. After the plants have been set out, they should be watered in well. Take care not to wet the foliage, especially if the day is bright and sunny. A good method is to "puddle them in," that is, take the nozzle off the hose or sprinkling can and let the water run in around the stems. After three or four days, cultivate the soil around your plants to loosen the compaction. But be careful not to loosen the plant by too close or too deep cultivation. At this time some

of the leaves may have turned yellow from the shock of transplanting. Clean them off. In fact, it's a good idea to clean off yellow leaves and dead flowers once a week. A good soaking once a week in hot dry weather should be enough. Too much water will cause yellowing of the leaves too. Again, a few days after each soaking, cultivate the soil. Mulching retards weed growth and helps keep the soil from baking to a hard crust. Geraniums are sensitive to frost; therefore, do not plant them outdoors until after May 20.

Varieties

Many exciting new ones are on the market as well as the old stand-bys. Rose-, fruit-, lemon-, and mint-scented geraniums are always popular because of the delicious aroma of their leaves which are frequently used for flavoring jellies and desserts.

However, the following are some specific names that have particularly good blooming qualities: Mr. Everaarts, an outstanding free-blooming, semi-dwarf dark pink; Honeymoon, a single appleblossom-type bloom with pink petals and white-edged foliage.

Noted for beautiful foliage are: Happy Thought, with gold-centered leaves in a rust zone edged with green; Mrs. Velma Cox, has gold, red, pink, and brown leaves with salmon flowers; Skies Over Italy, gold-edged leaves with green and brown flecks in a red zone, flowers single red.

Nearly all geraniums with multi-colored leaves must have partial shade when outdoors because their leaves lack sufficient chlorophyll to tolerate the intensity of full sun; a northern exposure is therefore best. However, ordinary, green-leaved geraniums need full sun for profuse bloom. In fact thinning out of leaves to let in air, light, and sun, stimulates bloom.

Dwarf geraniums grow only 6 inches high so are ideally suited to limited space. For this reason many soldiers are

avid dwarf geranium fans. These little plants have large blooms. For successful indoor flowers, an east window is almost a necessity. Some geraniums, dwarfs as well as regulars, go through a rest period in winter, but a good year around bloomer is Vesuvius. Water indoor plants every second or third day

and every month tint the water with a little vigoro.

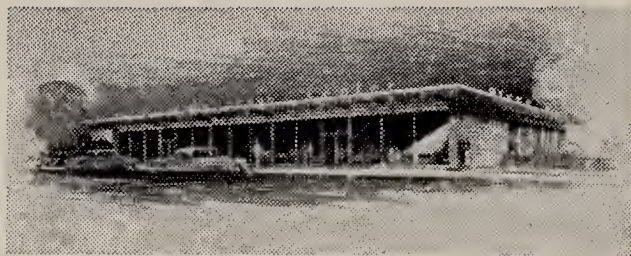
Ivy geraniums are interesting along with a phlox type and cactus-flowered kind. Flowers can be single or double. So pick a geranium for color accent, and charm. It's an old fashioned flower with a contemporary flair.



Esther C. Grayson has written a new book on African violets which has just been published by the Hydroponic Chemical Company in Copley, Ohio. The new book, called Theonex African Violet Book, is a complete and practical guide on the growing and culture of African violets with illustration from photographs by F. F. Rockwell covering every step of the care in growing these popular house plants from leaf cuttings, seeds and divisions. The book has been written for both the beginner, who wants to grow beautiful African violets and make them bloom fore profusely in the home, and for th eexpert, who wants a reference work for listing of new varieties as to color, type of flower, and names. Many varieties are shown by photographic reproductions.



Tiglith Pileser I, eleven centuries before Christ brought back from his campaigns, trees and shrubs of other lands for his famous garden in Nineveh.



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Applebolssom, Royal Stewart, Maytime, and Caribbean

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We've come a long way from the African and Mediterranean species of gladiolus, for example. The beautiful transition over the years, along with ease of growth and flowering for

everybody, doubtlessly made glads the most popular, most widely planted of all bulb flowers. Not only do they reach up in the border with their ribbons of exciting color, but they may be cut and will bloom for days in the home — a score of blooms from a single bulb and stem. The new leaders show up to a dozen big blooms open at a time, in the garden and in the house, with perfect placement.

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judges grow and evaluate them, from planting to bulb harvest, in all climatic zones and sections. To win recommendation from this super-jury, a glad simply has to be a super-glad for the highest award that can be bestowed.

1956 brought that new Grand Champion, Royal Stewart, and feminine delight, Appleblossom. The first All-America glads thus made their debut to that select society, the gardeners of North America.

1957 now glorifies that selection in an array of two more 'exquisite, rare, coloring famed in Caribbean and Maytime.

Eager and early to show their creative colors, gay and brim-full of vigorous young life are these new "Miss Americas."

These big four All-America winners provide a delightful choice as well as a collection of gala colors.

The first ruffled blue glad is Caribbean in light blue with a small cream spear and striking violet throat. Rare, to bluish glads, is its robust, vigorous growth. Nine to eleven florets in double rows open at a time. It is a new winner for blue glads in the shows; a real novelty and a gem in the garden. Its show classification is 376. This is according to the North American Gladiolus Council description.

Maytime has the show classification of 442. Its gracefully ruffled, deep pure pink flowers have large white

throats to give loveliness and charm. Lithesome spikes reach five feet or better and readily open 8 to 10 florets in a silky ribbon of color. The taffeta sheen of its petals imply its robust growth and plant health. It is ideal for cutting or exhibition, delightfully easy to grow in the home garden.

Appleblossom is a snowy white with a touch of cream in the throat and an exquisite flush or corona of cool rose pink at petal edges. Its show classification is 460, and it blooms in 65 or 70 days, while Caribbean and Maytime usually take 70 days. All are early bloomers.

Appleblossom opens up to 8 or 10 trimly tailored florets of five inch size and durable substance with spikes five feet high. It's a vigorous and easy grower that performs beautifully with average culture and has a delicacy of coloring that immediately appeals to the "gals."

The quartet ends and begins with the lordly Royal Stewart which is a clear light red with long flowerheads that frequently carry up to 12 big five-inch flowers open at one time. The lightly ruffled florets are of lasting substance and on strong spikes five feet tall. This is truly a remarkable glad with wonderful performance and is an outstanding winner of Grand Championships at gladiolus shows where it has been exhibited. It may well become the most popular glad in the world.

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ESPALIER

BY MAX BAUER

FITZSIMONS ARMY HOSPITAL



For the man who wants to raise fruit, but has not enough room to plant a few fruit trees in his yard, the espalier system may be the answer. Generally speaking, it means training trees or fruit bushes on trellises; however, a fence or wall will serve as well or sometimes better. For example, many grapevines are trained to form an espalier.

While our hot and dry growing season is not as favorable for espaliers as a more humid climate, fair results may be obtained with good care and a little experience. Any good garden soil will do for planting, and no fertilizer should be used until the second year when the tree is well-established and ready for it. Planting time for Colorado is in early spring, depending on the locality; for Denver, it is April. Pre-watering the ground before planting and mulching afterwards, will contribute much to the success of this operation, provided the roots of the plants have been kept moist and protected from sun and wind at all times.

Although any of the stone fruits (fruits with pits) may be used for this system, apples, plums, and peaches are the most likely to succeed in this area.

In employing the espalier system, dwarfed trees should be used because they bear fruit earlier than standard trees. Also, make sure that the tree is of a self-fertile variety, and that it has been growing successfully as a standard tree in the region. Your county agent is best qualified to give information on this matter. However, if no self-fertile

varieties can be obtained, and only the self-sterile types are recommended for your vicinity, it is imperative to have more than one variety of each particular kind of fruit. The different varieties must, however, be those that come into flower at approximately the same time so that they can cross-pollinate.

When you buy a dwarfed tree from your nurseryman, it will probably be a two-year old graft, and it will be up to you to prune it into an espalier. In this form, the branches, restricted to a symmetrical number, are trained in a single, plain parallel to the support (i.e. trellis or wall). They are extended in a diagonal direction, fan-shaped or horizontally from the main stem; or the ends of these horizontal branches may be bent at right angles to grow upward to a certain length, thus forming a U, or a double U pattern of espalier. All forms depend on the shape of your support. Of course, when the tree is grown against a wall, its size is limited by the available space. In this case, a half-standard tree may be used.

For the beginner, the easiest espalier to grow is one with a central stem from which the branches extend horizontally to form a double ladder. Each of these branches is pruned to a certain length, and all side shoots, except short spurs, removed. The lowest branches may be started a foot above the ground, and the tiers of branches spaced a foot apart. If there are only one or two opposite pairs of branches to start with, and if you wish to ex-

tend your espalier upward, proceed in the following manner: the leader, or main stem, is pruned to 12 or 15 inches above the side branches, leaving three buds immediately below the cut, one on each side, well-placed, and a third above to continue the stem. The buds on each side will form next year's side branches and the front, or upper bud, next year's leader. Employ this system until the desired height is reached.

On fences and trellises, the stem and branches should be tied in position with soft cord, or strips of soft material. These must be periodically inspected and loosened up, otherwise they will girdle the swelling branches. On a wall,

the branches can be fastened and held in place by pipe fasteners. A piece of soft material, like rubber, leather, or cloth, should be between fastener and branch to prevent injury to the bark.

Proper watering, pruning, feeding, and spraying are just as important for an espalier as for any other fruit tree. Thinning out for better fruit is also essential. In case the difference between a leaf-bud or fruit-bud is not known, wait until the fruit has set; then all misshapen and badly placed fruit should be removed, and the operation of thinning performed, not all at once, but in two or three stages.



Gladiolus usually is pronounced with accent on the "o", but most growers, dealers and florists, along with many gardeners, simply call them "glads."

Gladiolus answers for both singular and plural, although gladioli is the old plural Latin form. Gladiola is never correct. However the spelling or pronunciation, new creations bring new conceptions of beauty, vigor and health each year to supersede the older favorites.



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MAY IS A COLORFUL TIME

BY ROBERT L. WOERNER, DIRECTOR, BOTANICAL GARDENS OF DENVER, INC.

In a new botanic garden such as ours, we cannot offer the public a large display of flowers throughout the year. However, the month of May has already become a colorful one at City Park, for crabapples, lilacs, tulips, and iris (all well-established) give us a rewarding show. With further additions to the flowering tree collections just west of the Museum of Natural History, this spring interest will be increased in years to come.

In the pinetum, tulips hold the stage at the start. Over 4,000 plants of 40 varieties are naturalized along the paths through the juniper group just south of the museum. In late March these bulbs send their foliage up through the drab, winter-browned buffalo grass as harbingers of spring. Before April is over, Red Emperor, an early variety, colors the landscape with its scarlet flowers that are usually gone by this month. Red Emperor is followed by Rhinelander and Desire with their crimson and yellow and bright red hues. A week later, the largest number of varieties are on display. The various groups show colors ranging from light yellow to deep violet in both solid colors and combinations. Tulips add much to the area, for the junipers have not yet recovered all of their rich green color after the drying sun and wind of winter.

About the same time, the early lilacs, crabapples, and iris come into bloom, carrying interest to the area west of the museum building. Blue Hyacinth,

President Lincoln, and Edward Andre show off their blue and lavender blooms in Lilac Lane and are joined by the white, purplish-red and pink flowers respectively of Dolgo, Purple, and Midget Crabapples nearby.

Twenty-eight varieties of flowering crabapples in the botanical garden will continue to give colorful blossoms throughout May since early, medium, and late flowering types are already represented. The Hartwig, Aldenham, and Japanese Flowering Crabapples are a few of those which closely follow early varieties mentioned above. Later in the month Sargent, Nieuwland, and Wild Sweet Crabapples will hold forth in company with popular Bechtels Crab with its many large double pink flowers. These flowering crabapples are really a sight to behold in May. We look forward to the day when we can triple or quadruple the number of varieties of these small ornamental trees represented in the botanic garden, for they are hardy and useful trees for Colorado homes.

The first half of May is lilac time. Some 30 varieties bloom about the second week of May closely following the early ones listed above. Notable in this second group are Katherine Have-meyer with double pink flowers; Monge with many deep purple blooms; Edith Cavell, an excellent double white; Paul Thirion, strong growing with double, magenta florets; and the old, reliable Ludwig Spaeth with single, purple flowers. Following these, some ten later-

blooming lilacs complete the show. Of these, George Bellair, Glory, and Mrs. W. E. Marshall are outstanding.

Lilacs are easy of culture if they are given a routine maintenance program of spraying and pruning each year. They respond well to the alkaline soil conditions and plentiful sunshine found in Denver, and should have a place in most every garden.

New additions to our iris garden will make this unit of much more interest this spring. The tall bearded types gave us an excellent show last year on Memorial Day and can be expected to be better this year. Early in the month we can look for the small but attractive blooms of dwarf and pumila iris. A bed of pumila iris has been added in front of our iris "rainbow" plantings. This bed contains 25 varieties and 55 new seedlings of this small type iris which is almost stemless, but produces flowers 2 or 3 inches long in a multitude of hues from yellow to dark lilac. East of this bed is a new planting of dwarf iris. These plants are hybrids of *Iris pumila* and *Iris chamaeiris* and are 4 to 12 inches tall. They also bloom early and have a wide range of colors. In our garden there are 155 plants representing 73 varieties of dwarf iris.

In the center of the iris garden, two beds of intermediate iris have been added. These are hybrids between the tall bearded varieties and the dwarfs, and bloom about two weeks later than

the dwarfs. There are 95 plants of 20 varieties in the two beds with a surprising range of colors from white to brown and red-purple.

The most glorious display of all will be when the 129 tall bearded varieties take over at the end of the month. The majority of 900 plants in this group will then be in bloom. These familiar garden plants send up flower stalks to three feet or more. Included are 35 or 40 favorite varieties. Colors represented are white, cream, bright orange and yellow, light blue, medium blue, dark blue, purple, and several nice pink shades. Our garden affords an excellent opportunity for Denver gardeners to see these many types and colors of iris in bloom, in order to make selections for their homes.

In addition to the newer plantings in the botanic garden, there are other trees and shrubs in City Park that should not be overlooked. The Arnold Hawthorns and the Common Horsechestnuts west of the museum entrance will be covered with bloom. Viburnums, honeysuckles, cotoneasters, currants, spireas, and other shrubs throughout the park will be displaying their flowers, for May is the month when our gardens really "come alive." We hope that everyone will find an opportunity to drive through the botanic garden area. We can promise you a show which will increase in beauty as the development of the Denver Botanic Gardens continues.



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DEVELOPMENT OF BOTANICAL GARDENS IN EUROPE

By CHRIS MORITZ

Medical plots of the medieval cloisters in Europe were the beginning of the modern botanical garden. Monks at that time collected and described plants which are now of high medical and economic value. In Europe today, the botanical garden is usually associated with a university. The first such garden was established more than 400 years ago in 1545 at the University of Padua in Italy. It was laid out in the symmetrical pattern of the Renaissance age with mostly medical plants which served the medical students in their botanical studies. Somewhat later, the universities of Bologna and Pisa started gardens of similar design and purpose. Then Germany, at the University of Heidelberg in 1580 and at the University of Leipzig in 1597, started gardens. These were rather small and today are located right in the center of the cities in close relation to the universities. At present, there are hardly any universities in Europe without some kind of small botanical garden. These gardens no longer serve just medical students but are now used by students of botany and horticulture as well.

Formerly, a great emphasis was put on systematic studies before and since Linnaeus. Today, the ecological section is becoming more and more the main part of any newer botanical collection. The Berlin Botanic Garden, for instance, has a large area devoted to as many plant associations from all over the world as is possible to grow in Berlin's climate. Natural habitats have been reproduced very carefully and improvements are carried out constantly.

Along with the systematic and the ecological division, almost every botan-

ical garden has a few beds devoted to plants of morphological interest. Thus the botanical garden serves the purpose of supplying plant materials necessary for lectures in all phases of botany — i.e. morphology, physiology, systematics, ecology, etc.

After medical and botanical interests, it was horticulture that further influenced the development of these gardens. At the beginning of the English garden revolution, an interest in shrubs and trees grown to full maturity without pruning and clipping led to the development of arboretums. Before that time, it was hard to create interesting tree and shrub collections in geometric designs. Kew Gardens, the famous British botanical garden, is a well known example of the English style, and features a large arboretum of trees grown to full size on large lawn areas.

With an increased interest in annual and perennial garden plants, many botanical collections included small display areas for these plants and these areas gradually became public recreation parks. One factor that favored this later development was the central location of most botanical areas in the heart of a city near the university. The disadvantage of such a central location, of course, is that the garden gets hemmed in and cannot expand. That is why the Berlin Botanic Garden was moved in about 1910 to the outskirts of the city. Now the city has again grown around it and 20,000 to 30,000 visitors are often counted on a Sunday.

A trial garden is the offspring of the botanical garden. It contains plants that are of horticultural interest only, natural species, the results of man's

breeding efforts, and plants considered to have garden value. The main purpose of a trial garden is to test these plants, issue reports of the trial results, and display and announce such plants (species and varieties) as are worthy of growing in the area. Trial gardens are most effective if there is a series of them, each located under different climatic and soil conditions for testing the same varieties over a number of years with a combined report later. Such gardens are of tremendous value to homeowners, nurserymen, and landscape architects. They save everybody the trouble and expense of trying out again and again plant varieties that are not worthwhile. Nurserymen in Europe gladly contribute of their stock to establish such trial grounds.

Far seeing European horticulturists recognized the value of trial gardens long ago. These gardens, run by the Royal Horticultural Society, have existed in England for years. New garden plants are tested there and either get an award or are dropped. In France, the park of the castle Vaux le Vicomte (the first French Renaissance garden) is used as a trial garden. In Germany the idea spread rapidly after the last war, and now there exist in various large cities, eight or ten trial gardens run by leading horticulturists. After the first reports were published, many nurseries eliminated stock that had a poor record. Good and new varieties spread fast all over the country, and breeding work advanced more rapidly. Everybody benefited from it. It has practically become a custom in Germany now, to have the area of each biennial garden show remain as a trial garden afterwards.

Then too, there has been and there still is a definite movement in European countries to get children of school age acquainted with the native plants of their home country, with important vegetable and farm crops, and with

the elements of botany and horticulture. It is considered important in the education of children — especially children reared in a city — for them to get an understanding of the propagation and growth of plants and crops and to get familiar with all the work that goes with it.

As early as 1663 in Augsburg, Germany, the architect Jacob Furttendach published a plan for a 16 class elementary school which contained outdoor classes — pavilions for teaching — located in the center of geometrically designed gardens of flowers, trees, and vegetables. He furnished an accurate planting design along with the plan.

But it was not until the second half of the nineteenth century that the school garden movement got started all over Europe. In 1900 there were 18,000 school gardens in Austria. At the same time, one third of all schools in Switzerland had a garden for teaching children. In Sweden, there were 2,000 school gardens counted in 1882. Along with the garden city movement in England, there was a quest for school gardens starting in 1890. Germany was slow in accepting the idea in spite of men like Froebel, the founder of the kindergarten, and Dr. Schreber who started a movement for playgrounds in parks. Today, most new schools in Switzerland get a well and carefully designed area for teaching gardening and botany, and for acquainting students with native plants.

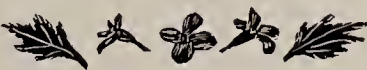
In Germany there is often not enough room for a garden to be right next to the school. In that case, a large garden for many schools is furnished where there is space. Classes go out there, have lectures, and do practical work. Children have beds of their own and learn how to prepare the soil for seeds and seedlings. They enjoy watching their plants grow, tending to them, and finally proudly enjoy harvesting the products. These school gardens are

of high ethical value since they teach children that they cannot harvest crops unless plants are tended, weather is favorable, and everything is done properly. At the same time garden work improves the health of children just as much as outdoor sports. Such a school garden is an aid in teaching subjects like botany, biology, freehand drawing, music, geography, zoology (there should be no garden without animals), and foreign languages. There should be space for individual gardens, an outdoor classroom, native ecological plant associations, plant material for botany lectures, etc.

If we want future generations to

appreciate plants in nature and gardens, if we want our children to respect life and stop destroying living things by man-made technical devices, then school gardens are a very important factor in the field of education.

In conclusion, a botanical garden in Europe emphasizes the scientific phases of botany while trial gardens and school gardens are specialized unless there is sufficient room in a botanic garden to satisfy all requirements. And so, though the functions overlap, in Europe there is a definite distinction between a botanical garden, a trial garden, and a school garden.



Roman farmers knew and practised many techniques of farming and horticulture that the world forgot and had to rediscover, such as green manuring with vetch, seed selection, crop rotation, the use of compost, the preserving of manure, budding, grafting and pruning.

—From the Story of Gardening by Richardson Wright

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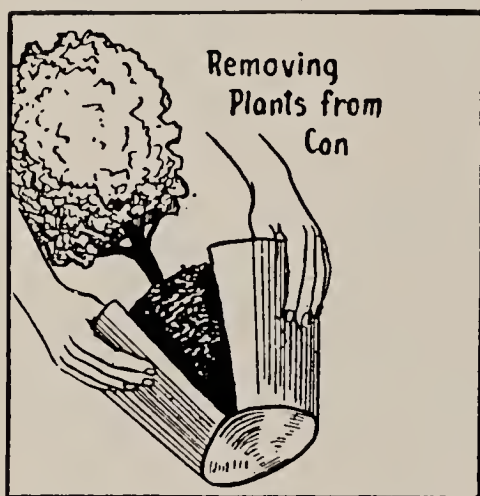
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When container-grown plants are received from the nursery, if the tin containers are not already split open for easy planting, take a chisel or snips and slit open two sides of the can. Next grasp the container at the rim and spread it open as shown in the diagram, being careful not to disturb the soil about the roots of the plant.

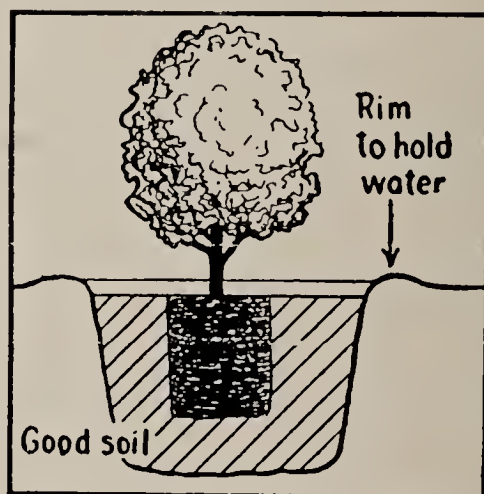


The third step consists of grasping the soil about the roots firmly with both hands, lifting it gently and placing it in the hole you already have dug to receive it. Never grasp the plant by the stem, advises the American Association of Nurserymen.

Plants in pots may be removed easily by spreading your fingers against the surface soil, the stem of the plant being

between your two middle fingers, and then turning the pot upside down and tapping the rim lightly against a firm edge, so the earth will slide out intact. For best results the soil should be moist. Transplant to the permanent location without disturbing the soil about the roots.

For plants in gallon and six-inch pots, dig a hole 15 x 15 inches; in 5-gallon or 9-inch pots, the hole should be about 24 x 24 inches. Depth of planting is at the same level as planted in the container, unless advised otherwise by your nurseryman.



Place soil evenly about the ball of earth, firm the soil down, and finally soak the roots thoroughly with water.

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WHICH GARDENER ARE YOU?

There is a time and place for everything in this world, and gardening is no exception.

Ornamental gardens fulfill three needs in life and so are of three distinct types:

1. The garden for young families.
2. The garden for middle-aged families.
3. The garden for older families.

Obviously, the garden for a young family has to be hardy and easy to care for because of the busy schedule of rearing children, establishing a line of work, and stretching incomes to pay for a home. In addition to plants that require little care, it is preferable to have some that are appealing and interesting to children.

The garden for middle-aged families is a garden that is familiar to us all. Regardless of our station in life, we try to raise just one kind—the domesticated plant type. The fun of this garden is in trying to change the conditions enough to make these fussy plants feel at home. When the first group makes such an attempt it becomes tramped-out, weedy, and skimpy. But group 2 can afford to pamper, for gardening becomes a substitute for time formerly spent on children now grown and gone. Energy, time, and money, plus strong parental instincts must find an outlet. Every native plant is eradicated from the yard, and every inch is filled with *someone else's* native plants, or with domesticated ones. It is a breath-taking race to see how many exotic plants can be made to flourish.

In group 3 such a garden becomes only a memory, for with limited strength and resources it usually seems best to move into an apartment. Former gardening is relegated to a windowbox or a terrarium.

But a garden for an older family need not be that kind. Instead, if the

owners are possessors of an irrepressible "deep green thumb," there is no reason why they cannot continue to enjoy the hum and excitement of "the good earth."

A native plant garden can be the answer. Here is a solution for the problems of limited water and the expense of a yardman. Most surely this kind of garden is going to be of increasing importance to people of all ages and stations of life. It is made to order for the basementless one-story house with little or no storage space for gardening tools. Then too, such a native plant garden can become what a regional garden should be—distinctively indigenous.

For an older couple with limited strength and time, or for busy urban dwellers, this is an ideal garden. Vacations or visits to see children, grandchildren, and great grandchildren are no problem because the garden will not suffer during an absence. These are just a few of the advantages—there are many more. The possible ramifications of native landscaping are particularly important in Denver and the Rocky Mountain region, involved as they are in an increasingly critical water shortage.

It behooves all of us to consider every aspect of gardening with native plant materials.

Contributed anonymously.

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REINHARD SCHUETZE

Municipal landscaping in Denver began with Reinhard Schuetze who was engaged by the city about 1894, and who held the office of landscape architect until his death in 1909. He was considered one of the foremost landscape architects in the United States and he was frequently consulted by officials of other cities who knew his reputation.

Reinhard Schuetze was born in Holstein, Germany, in 1860 of parents who ranked high in the social world. As a youth he was sent to the world-renowned royal gardens at Potsdam, where under instructors especially appointed by the emperor, he was given a thorough course in landscape gardening. He then took a course at the Academy of Forestry at Eberswalde, from which he graduated as a landscape architect and civil engineer at the age of 28 years.

Shortly after graduation he was brought to Denver to design and lay out Fairmount Cemetery, which was organized in 1890. After he finished the cemetery, he entered the employ of the Denver park board.

His first task was to rebuild City Park. He designed the big lake and the general architecture of the park as it is today. He also designed Washington Park, 1899, Congress Park, 1890 (later named Cheesman Park), and all the parks on the North Side; Platte Park, 1896, Chaffee Park, 1894, Highland Park, 1899, and Jefferson Park, 1899.

In Jefferson Park, Schuetze retained the natural topography, and an open park was developed to the English plan. In this park there is a fine group of hackberry trees.

Schuetze received the first prize of \$500 awarded by the state for the best design for landscape which now surrounds the State Capitol. Many of the beautiful private gardens of this period are his work.

He was sent on an extended tour of the United States by the Fairmount Cemetery Association before he drew the plans for the cemetery and later he was sent by the city on several occasions.

A newspaper article states that "Schuetze was more interested in his art than in making money. Those who have watched his career declare that had he desired, he could have become a wealthy man by acting as a consulting architect, but he never sought employment of that kind, although much of it came to him voluntarily."

He was married in 1896 to Miss Amelia Nehber, a teacher in the Denver Public Schools, who survived him. He died in 1909 and was buried in Fairmount Cemetery.

In 1910, S. R. DeBoer was appointed to the position of landscape architect and was responsible for the most important advances in the landscaping of the city.

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THIS AIN'T NO TALL TALE . . . IT'S THE TEXAN

This year a new and most unusual rose was born in California. Birthplace was Howards of Hemet, California—home of All America Rose Selection Award Winners, Tiffany, 1955 (hybrid tea) and Lilibet, 1954 (floribunda).

The new rose had a pair of illustrious parents. "Papa" was PEACE, a rose that needs no introduction and IMPROVED LAFAYETTE is a lady of fine breeding that many a rose would be happy to call "Mom."

But right from the start, it was obvious this new rose was no ordinary child. Labeled a floribunda, it had ideas of its own. Pretty soon people were huddled around it unable to believe their eyes. "This is a floribunda?" they gasped. (Floribundas are supposed to be on the smallish side as most everybody knows). The comment continued: "It's a whopper! Big as a hybrid tea. Big as a climber. BIG AS A PALM TREE."

One person told another and the tale grew taller with each telling. So did the rose. "Shucks," they grinned at Howards of Hemet, "Even us Californians know when to say 'uncle.' There's only one name for this rose—TEXAN.

The TEXAN is blazing red as a prairie fire. The main canes grow much taller than the average floribunda and the clusters of blooms are fantastically big. Yet with all this



rugged beauty, it's as softly scented as a southern belle.

It's being hailed as California's gift to the g-r-e-a-t State of Texas . . . and the world. The rumor is that out Texas way it's considered downright unfriendly not to have at least one TEXAN rosebush growing on the premises. Available now in containers at local nurseries, the TEXAN is sure to be a whopping beauty in your garden.



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THE TIME OF YOUR LIFE

BY EARL LEROY CALDWELL
Webster Groves Club, Missouri

The time of your life is now. As you read this sentence you cannot re-live the time you read the previous sentence. Time only moves forward—forever positive, never negative. The clock never backs up; the world never revolves backward, either on its axis or around the sun. Even the Universe is traveling one way. You are riding on a one-way ticket, and from birth to death is the time of your life.

How you enjoy this time is your personal choice. You can live it alone or with other things, material or living things. But material things have no animation and are apt to be sorry companions. It appears best to live with living things, like a woman or a flower.

By living with living things you add to the time of your life. Concurrent lives will add to your life. If you love plants, you may develop many lives, the breeding routine will produce more. If you assist young plants in their youth, nurture them to grow, sigh when they die, you have added time to your life. The gardener is simply a garner of lives, saving them for themselves first and for himself last. Most gardeners live to be very old, sagacious, patient and understanding, due surely to their fuller, richer lives by such association. Life is simply the integration of moments; the problem is to use each moment to the fullest.

So plant a garden. Each viable seed starts a new life, a new increment of living time parallel with yours; yours to utilize, to nourish, to love; its time is your time. A hundred seeds, a hundred lives; a thousand seeds, a thousand lives. Continue this, and you achieve infinity, where parallel lives meet and time is without end.

Try not to borrow time. Who would grant you the loan and what would be the date of maturity? Would you borrow the past or the future? And would you repay the loan on easy payments by minutes or in a lump sum by years? And what collateral could you offer for security? Not the past, surely; and who would accept your future? No. The time you have, friend, is the present. The time of your life.

—From *THE MEN'S GARDEN CLUB MAGAZINE*, Autumn, 1956



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BOOK REVIEWS

The Book of Flowering Trees and Shrubs by Stanley B. Whitehead, 63 plates in colour by Joan Lupton, Frederick Warne & Co., Ltd., London and New York, 1956.

Written in the form of a handbook, the 244 pages answer about all the questions that might be posed on shrubs and small trees by a non-specialistic gardener in the temperate zone. Even some few gems associated with mild climates have found their way into the book.

No attempt has been made to include the large flowering trees and, of course, evergreens are omitted. A very few vines are discussed and their flowers illustrated.

Shrubs and shrub-like trees are discussed from the landscaping, soil, situation, planting, propagation and care points of view, with extensive lists of genera falling under these various considerations. Thus, acid soil loving ornamentals, shade tolerating small trees and shrubs, etc. are detailed as to genera.

The bulk of the book contains descriptions of genera in alphabetical order and assigned to families under the headings of variety, morphology, soil, propagation and care, for each genus. Many favorites in American gardens are not mentioned but "The Book of Flowering Trees and Shrubs" does not presume to be an exhaustive treatise.

The plates are only a few pages removed from the descriptive text, in all cases. Some fruits are shown. The coloring is natural, the leaves and floral parts are clear cut, albeit practically none of the illustrations are natural size. Anyone can immediately recognize their favorites as they peruse the plates.

A glossary of botanical terms with black and white diagrams follows the

discussions of the species. An index of family, generic and common names finishes the book. By means of the index, the various genera can be collected under their family name, to increase interest in and enjoyment of ornamentals. Thus, genera *Aronia*, *Kerria* and *Sorbus* are akin, belonging to the *Rosaceae*.

E. ADELHELM



John H. Tobe dedicates his book, **Growing Flowers:**

"To you who love the land
And all the wondrous things
That from its bosom spring
This work I humbly hand."

And such people will love it. Experts, novices, even non-gardeners will find it profitable and amusing. It's a delightful mixture of true nature stories, legends, and garden lore told in a facile, chatty, neighborly way. Just about every subject in garden lore is touched upon—dish gardens, espaliers, fertilizers, mulching, "sex life of a date," carnivorous plants, perennials, annuals, dwarf fruit trees, botany, strawberries, comparatively unknown but easily grown flowers, vegetables, etc.—all are happily jumbled together. Specifics are given too, such as potting mixtures for bulb forcing, seeds, cactus, and acid and alkaline-loving plants. It abounds with anecdotes and homely humor. Here is a book that radiates the author's love for every-growing thing—including the human race!



In planting roses keep the bed away from the roots of trees and shrubs. Roses are heavy feeders and they are very unwilling to have their food and drink stolen from them by encroaching plants.



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Seasonal Suggestions

Plan to attend the Garden Fair May 3, 4, 5 at the east side of the Cherry Creek Shopping Center. You'll find all kinds of garden items for sale and experts will be there to answer puzzling garden questions.

Take time out for a drive to see the various ornamental trees in bloom. In the city of Denver, Speer Boulevard, Seventh Avenue Parkway, City Park, Cheesman Park, and Washington Park are good bets. The cherry trees around Fort Collins and in Canyon City should be good the fore part of May. While you're in the mood, start that garden notebook you've been putting off for so long. Record in it the flowering dates of various trees, shrubs, annuals, and perennials; this information you'll find invaluable when you begin planning a garden for bloom throughout the growing season.

As May advances, the weather becomes stabilized, but wait till the 15th or later to set out tender annuals to avoid any late killing frosts.

It's usually safe to "un-hill" your roses the second week of May and at this time it is safe to prune them. On good, healthy, strong bushes, cut back only to the live wood. On weaker bushes, remove spindly canes and dead wood.

As lawns begin their growth, so do weeds. Most broadleaf weeds are more susceptible to weed killers such as 24D when they are young and succulent. Apply this type weed killer on a warm day, 70 degrees to 90 degrees is preferable and most effective. Crabgrass control should be started the end of the month with an application of Pax, chlordane, or lead arsenate. Apply again the first two weeks of June. A series of tests over a period of 37 years indicate that crabgrass seed can remain viable for that length of time; therefore the best control of it is to maintain a good healthy, thick turf which does not allow bare spots or room for these long lived seeds to germinate. Read the labels carefully and follow directions when applying weed killers.

Of course warm weather also activates the insect world. Watch your evergreens, roses, and other plants for signs of aphids and spider mites. Malathion is an effective spray against these two serious pests. To detect spider mites and aphids on evergreens, shake a branch vigorously over a sheet of white paper, then examine the paper for signs of movement. If you detect activity, it is time to spray.

Most bare root planting of trees and shrubs should be done by mid-May. However, most of the local nurseries carry a complete line of trees, shrubs, and evergreens in containers. These materials can be planted any time, even during the heat of the summer with very little danger. Bedding plants are available now. Remember, if you transplant such plants on a hot day, provide shade with newspapers or some other kind of screening to prevent plants from wilting or dying before they have a chance to establish themselves.

Whether or not you begin watering lawns regularly this month depends on the weather and the water restrictions in your area. Try to space your waterings as far apart as possible to encourage deep rooting before the hot weather of June or July begins.

Also try to get all the heavy chores done early in the month for fishing season opens the 18th of May! — Pat

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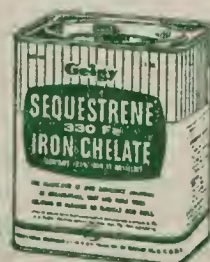
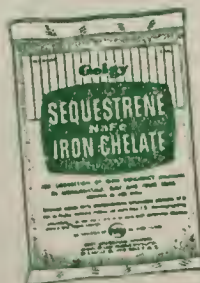


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The Green Thumb

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June, 1957

25 Cents

The Green Thumb

COLORADO'S GARDEN MAGAZINE



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on America's last regularly scheduled narrow-gauge train, The Silverton, between Durango and Silverton, Colorado. First trip Friday, June 7; then Sunday, June 9; Wednesday, June 12; Friday, June 14. Effective Sunday, June 16, train will run daily through Sunday, September 8; then Wednesday, September 11; Friday, September 13 and Sunday, September 15. Only \$4.00 for round trip including tax.



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For complete information on all Rio Grande transportation, contact your local Rio Grande agent. If you'd like to receive notices on special excursions, send your name and address to DENVER & RIO GRANDE WESTERN RAILROAD, Passenger Department 104, P. O. Box 5482, Denver 17, Colorado.

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The Green Thumb

Vol. 14

JUNE, 1957

No. 5

Colorado Forestry and Horticulture Association

Organized in 1884



"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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Editor	Patrick J. Gallavan

IT'S GARDEN TOUR SEASON

The first Look and Learn Garden Tour for 1957 will take place on Wednesday, June 12 from 10 o'clock in the morning until 5 in the afternoon. All six gardens are situated in the Hilltop area east of Colorado Boulevard and south of 8th avenue. In each one you will find, as usual, an expert to explain the hows, whys, and wherefores!

Season tickets are to be had at Horticulture House and from Mrs. Ford Williams, 360 Franklin Street. \$3.00 entitles you to 26 garden visits on the four tours, June 12, July 10, July 31, and August 21. Hurry and get yours.

ABOUT THE GARDEN FAIR

A full report on our very successful Garden Fair will be made in the July Green Thumb but the Association would like, at this time, to thank The Denver Post, Rocky Mountain News, Rocky Mountain Herald, The Monitor, and all neighborhood and trade papers for the wonderful publicity they gave the Fair. A thank you also to Kohler-McLister radio broadcasts, Herb Gundell's radio and television program, Pat Gallavan's Green Thumb program, the Farm and Home Hour, and to the other broadcasters for their generous time. Of course it goes without saying that the Fair "wouldn't have been" without the magnanimous contributions of plants from nurseries and displays from other shops, or without the help of so many enthusiastic individuals. A warm and hearty thanks to you all!

PATRICK J. GALLAVAN

Editor MRS. HELEN FOWLER Librarian

MELANIE BROWN, Asst. Editor and Librarian
MR. AND MRS. CHARLES C. FISCHER, Custodians

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MEMO

Calendar of Events

June 3 "Fun With Flowers" first Monday of each month, 10 a.m. Woman's Club, 1437 Glenarm Place.

June 5 Botany Club meets the first Wednesday of each month, 7:30 p.m. Horticulture House.

June 12 Organic Garden Club meets the second Wednesday of each month, 8:00 p.m. Horticulture House.

June 13 Denver Rose Society meets the second Thursday of each month Room 186, City and County Building at 8:00 p.m.

June 12 Look and Learn Garden Tours. Tickets available Horticulture House.

June 12-30 Colorado Wildflower Course given by M. Walter Pesman will have 5 sessions—two in the evening, Wednesdays June 12 and 26 from 8:00 p.m. to 9:40 p.m. in Room 308 at C. U. Extension Center; two Saturday field trips, June 15 and 22 from 1:00 p.m. to 5:30 p.m.; and one all day field trip Sunday, June 30. \$15.60 for the course includes bus trans-

portation for the Sunday trip. Take a tip from your editor—this is a terrific class!

June 14 Crestmoor Friendly Gardeners Annual Flower Show, 2:00 p.m. to 8:00 p.m. at Industrial Federal Savings, 200 Univ. Blvd.

Pat Gallavan's "Garden Guide" TV Program, Channel 6, starts Wed., June 26, 7:30 p.m. and will continue each Wed. for 10 weeks.

June 30 Denver Rose Society—Annual Rose Show, Ford Motor Company, 2650 E. 40th Avenue, Denver, 2 p.m. to 5:30 p.m.

Green Thumb Program, 9:00 a.m. each Saturday KLZ 560 on your radio dial. Pat Gallavan, Horticulturist and Dale Morgan.



This dear old man—the Cottonwood—
Suggests such happy things—
Long quiet days down on the farm—
The branches made for swings—
The bright red, squirming catkins
With which children like to play
And his furious mimic snowstorms
On a windy day.



Picking dead flowers improves the appearance of the garden and may result in second bloom. It prevents seed production which exhausts plants.

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PARK AND RECREATION LAW REVISED

BY FRED R. JOHNSON

Senate Bill No. 183, introduced by Senator David Clarke of Denver at the current session of the Colorado General Assembly, proposes a number of revisions in the Colorado statutes relating to the State Park and Recreation Board.

In 1953 the legislature enacted a law providing for a Park and Recreation Board, consisting of the heads of five state agencies plus two citizens, one representing business and the other labor. This has not proved satisfactory, and various groups interested in parks and recreation have recommended changes.

Senate Bill No. 183 provides for a board of seven members, one from each congressional district and three at large, all to be appointed by the governor. Among other qualifications, the bill provides that board members shall be persons who have displayed an active interest in, and knowledge of, the powers and duties conferred by the law.

Under the proposed legislation, the state advisory council would be discontinued, but local and regional park and recreation councils may be appointed to study and advise the board for the extension, development, and maintenance of any areas to be considered for future state park or recreation areas.

The bill broadens the duties and authority of the board as well as those of the director. In fact, the duties of the director are rather extensive so that an experienced and well-rounded individual will be required to fill the qualifications and requirements listed.

The bill passed both Senate and House and was approved by Governor McNichols on April 1. Also the legislature appropriated \$39,000 for the work of the Park and Recreation board for the year starting July 1, 1957.

At this writing the make up of the board has not yet been announced by the Governor. It is understood that several organizations have suggested names of prospective board members to the Governor.



Taken from the February 1957 issue of The Engineers Bulletin in Elmer O. Davis' page "75 Years Ago."

"Mayor Robert Morris buys the south one half of Section 36 this morning for a City Park. This was school land Co. Supt. of Schools Fetzner sold it for \$175.00 per acre. It comprises 320 acres and is one mile outside the city limits, only Section 35 intervenes. It is a grassy plain, at present without a tree or shrub, and is one mile from the end of the nearest horse-car line at Park Ave. (23rd Street)."

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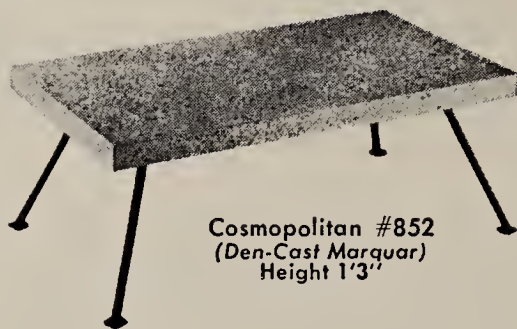
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FERNS IN YOUR GARDEN

BY W. F. WILLARD

Mr. Willard has recently retired to Denver after a long career in the educational field in Chicago. His hobby, botany, attracted him to the organization, Friends of our Native Landscape, which was charted by the state of Illinois in 1913 under the leadership of the well-known horticulturist Jens Jensen. Mr. Willard later became editor of their publication of the same name and remained the editor for 12 years. Mr. Willard now resides with his daughter here in Denver.



When nature started out to decorate this old planet, ferns were selected and used with a lavish hand, for ferns may be found in all parts of the world. To find and behold them at their best, one should go to the mountains, for here the artistry of their fronds enraptures the eye.

*"To him who in the love of Nature
Holds communion with Her visible
forms*

She speaks a various language."

So said Bryant the naturalist and poet, who was familiar with the woodland symphonies of flowers, birds, and bees in all their haunts. Bryant sought the solitude of ferns and trees away from the hustle and bustle of the noisy city. Such environment is necessary today for soul expansion.

In some countries of Europe, especially England, there is a greater interest in fern culture. Perhaps it is due to the fact that without flowers, ferns are difficult to analyze and classify and are avoided for this reason. This appears to be true here.

Native ferns seem to choose their environment carefully. Always found in

remote places where moisture is plentiful, or high up on some shady ledge, or down in a ravine or tamarack swamp, the feathery fern is a thrill to any nature lover. Naturally the gardener covets these pictures of ferns nestled near a pool, in nooks in a rockery, or at home in some bog, protected by shade and a northward exposure.

Ferns are easily transplanted. They rarely object to a new location if appropriate soil conditions are established with leaf-mold or peat and adequate shade is provided. No manure or fertilizer should be used. Ferns are fibrous-rooted and obtain their food from soluble elements of decayed vegetable matter such as leaves, grasses, and wood from the forest floor. They should be watered copiously from below by saturating the soil rather than by overhead sprinkling. Always cover the ferns in the fall with leaves and *do not remove them in the spring*.

Ferns are classified by their method of fruiting, i.e. by spores. On the underneath surfaces of the fronds of most species are to be found (often with the

aid of a microscope) the fruit capsules arranged in regular order. These do not appear until the middle of the summer season. Each little seed capsule or sorus is surrounded by a thin membrane called the indusium. When the sorus is ripe the indusium pops open, scattering the seed spores to the four winds. From this point, Nature produces some strange but interesting facts in fern propagation, taking from three to five years to complete the life cycle. So fascinating is this biologic story, each gardener or fernologist should become familiar with these reproductive processes before he establishes his fernery.

Strange as it may seem the idea of sex prevails in most, if not all, vegetable life. In the process of corn reproduction, the tassel drops its pollen upon the silken strands of the forming ear below, fertilizing the embryo kernels. From the sori or spores of the fern, there develops a sexual plant called a "prothallium" which connects itself to the moist soil by fine roots. Underneath the prothallium are the male and female organs. The male organs or "antheridia" correspond to the stamens of flowers, and the female organs or "archegonia" to the pistils. From a conjunction of the sperms, a germ-cell is created, and thus a tiny fern is born to go forth in the world. The writer spent one whole summer in a biological search for this plant secret, but found it within fifty feet of his back door! The botanist calls them "gametophytes" that develop into the "sphorophytes" that finally become visible ferns.

There are ferns that reproduce by stolons or tubers that form on the roots. The walking fern reproduces from the tip of its fronds where they touch the earth. The bladder fern (*bulbifera*) makes a short circuit by dropping bulbs that form under the fronds as does the tiger lily.

Without the aid of humming bird,

bee, or butterfly, nature perpetuates the fern as it did millions of years ago. Although there is little definite knowledge of prehistoric ferns, geologists have identified the flowering ferns (osmundas) in some coal and limestone formations in the coal mine regions of Wilmington, Illinois, and in Mazon Creek in the same area. But live specimens and fossils may be seen at the Museum of Natural History here in Denver if the human mind has difficulty in reconstructing botanical pictures of luxuriant ferns that flourished in the Paleozoic, Carboniferous, and Mesozoic ages. Since the passing of these periods, the earth's surface has undergone many vegetative and geologic changes—some quite recent. Plants that flourished then have given place to genera with but few traces of the past. Still, there are nearly 8,000 identified species of ferns. Two hundred of these are native to the United States and northward. Each section of the country grows ferns peculiar to that locality and climate, but ferns are most profuse in the tropics for they cannot always endure northern winters. Even members of the same genera like the Christmas fern (*Polystichum*) and its green house cousin Boston fern, cannot exchange seasonal habitats.

1) Among the most attractive and hardy ferns are the flowering osmundas. There are three species, the cinnamon being the most outstanding and vigorous. Early in the spring it makes its appearance by sending up woolly "fiddlenecks" that rapidly unfold. It sends up its cinnamon-colored fertile stipes (stems) first which are followed and overtaken by the sterile fronds that may reach five or six feet long.

2) The first of the osmundas to come forth in spring is the clayton or interrupted which resembles strongly its cousin the cinnamon. The chief difference, however, is in the fronds. The

sterile grow in a circle within the fertile fronds while with the cinnamon they are reversed when mature. These fertile fronds remain green and brown throughout the growing season and are interrupted midway by several fruiting pinnae or leaves.

3) The third member of this group, the royal fern, is more universal in its choice of habitat, growing alike in Europe and America. While it in no way resembles either of its relatives except in flowering, it is beautiful, graceful and regal in its appearance. Its foliage branches off from the main stem, creating a small shrub effect of green feathery pinnae.

4) Closely resembling the cinnamon is the ostrich, a spreading variety. This fern propagates by means of stolons, creeping underground. The sterile fronds appear first, and then in July, the short stubby fertile stipes. It is vigorous in the northern woods and low places. The name *ostrich* was given due to its resemblance to an ostrich feather.

5) This beautiful lacy fronded lady fern (*filix-femina*) is one of the most graceful. Its decorative qualities surpass those previously described. It may be found in two thirds of the state of Colorado with crescent shaped sori under the pinnae as identification. The fronds grow in circles from a strong

creeping rootstock. This fern has several hybrids which adapt to a good habitat.

There are many mythical and poetical references according to Clute for:

If you would see the lady fern

In all her graceful power,

Go look for her where woodlarks learn

Love songs in a summer bower.

6) The Christmas fern is a distinctive evergreen species. Its fronds also grow in circular clumps from the crown. In dark shady woods it sends up blue-green fronds stiff and straight, as high as three feet. It is not finicky as to habitat only preferring a moist hillside with leafmold. Among its associates are the trilliums, hepaticas, bloodroot, Dutchmans breeches, Solomon-seal, ginger, and ladyslipper. These are fine neighbors, indeed. Christmas fern has a commercial relative, Boston fern, one which cannot transfer its habitat from the greenhouse to outdoors.

The species of hollyfern here in the West is known botanically as *Polystichum munitum* which has marks of identification similar to *Polystichum acrostichoides*. It is hardy.

7) Rattlesnake fern is not as common as those described above. Its chief distinction lies in the combination of sterile and fertile fronds—the fertile



Heartstongue fern.



Ostrich fern.

rising far above the sterile branch-like pinnae. *Shade* and *moisture* are necessary too. It is not common in Colorado.

8) Unlike any of the other fern species, maidenhair excites the woodland rambler to ecstasy. With slender black stems and bi-pinnate foliage, it finds itself at home in circum-neutral soil in moist rich woods. For companions it may have baneberries, meadowrue, and columbines, all of which have foliage resembling that of maidenhair. This causes confusion for the amateur. The sori collect on the margins of the pinnules which in turn are reflexed back to act as the indusium. It needs legal protection to prevent its extinction.

9) Goldie's shield fern is one of Nature's elite woodferns. It likes to be alone in deep woods (ala Garbo), in circum-neutral soil. With its retiring habits and vigorous size and beauty, it will adapt itself to shade and moisture.

In as much as it is not locally a habitue of our mountainous area, Goldie may be bought from eastern or midwestern specialists and grown here. For my money Goldie is tops!

Among some of the exotic types that bring thrills of joy are the climbing ferns (rare), walking, adderstongue, spleenwort, woodsia, hartstongue and many others. To be successful with *any* fern the gardener must know the fern's whims and caprices as to habitat and growth. A poet once said "not failure but low aim is crime."

A visit of the writer to the home of the hartstongue in central New York revealed this rarest of ferns had been picked by so-called nature-lovers leaving only two to propagate the generations to follow. Doubtless by this time they too may have disappeared from the earth.

The picture represents a fern garden of the writer in Chicago showing many hardy species.



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NIGHT LIGHTING IN THE GARDEN

BY CHARLES FISCHER

The practice of lighting outdoor gardens at night has been used in European landscapes for many years. This practice was becoming popular in the United States prior to the Second World War, but shortages of electrical supplies created by the war terminated it. Now once again, interest is being revived by several electrical manufacturers who have sponsored research and advertising programs to improve and promote outdoor lighting equipment.

Landscape illumination lengthens the hours of outdoor living and increases the pleasure of many pleasant evenings during warm seasons. It effectively integrates indoor-outdoor living areas and attractively locates a residence during the hours of darkness, if it is properly done.

Night lighting also has the added advantage of selective emphasis of features of current interest, leaving the less attractive ones "in the dark." Correct placement of lighting units and

lamp colors, selected to emphasize plant foliage and texture, will also do much to improve the actual appearance of most plants, and the illumination of recreation areas, walks, steps, and drives by reflected light can be one of the functional results of night lighting.

Concealment of all light sources is always an important consideration. At night, an exposed fixture will produce a glare of distracting light, and in daylight, an exposed unit will seldom add to the beauty of a garden. Therefore, conceal lighting equipment at ground level behind low growing shrubs, flowers or other existing plants. If fixtures must be in an elevated location, hide them among tree branches or install them on a unexposed side of a building. Thus glare at night and ugly distractions in daylight are eliminated.

Metal shields are also effective in concealing lighting equipment. They are especially useful when the lighting

units must be placed in an open, exposed area for the best lighting scene. These shields, when placed close to a light source, will eliminate and prevent any distracting glare. Metal shields are unattractive during daytime but are most useful for temporary garden lighting.

When existing plant materials or metal shields cannot be used for concealment of the lighting fixtures, it is best to sink the units in the ground. To do this, an inexpensive fixture can be made with a minimum of material: insert waterproof electrical wiring through the drainage hole of an 8 inch clay pot, wire the socket and lamp in position and line the sides of the pot with aluminum foil for sufficient reflection. Sink this practical unit in the turf to completely hide it from view. This method will still allow for easy maintenance of the grounds.

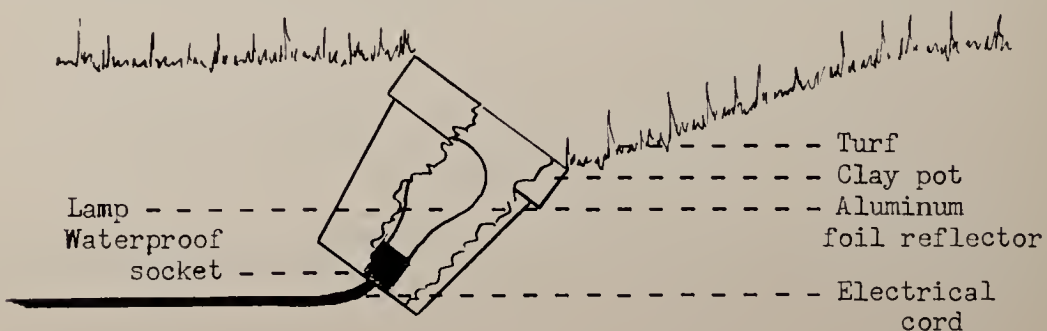
An interesting touch in lighting foundation plantings is to throw shadows on the sides of a building. This emphasizes plant textures and creates unusual shapes, patterns, and designs. For variety, add color to these shadows by using two sources of light, one in front of the foundation planting, with the second one for color illumination. This second lighting unit can be concealed behind the foundation planting using a lamp of lesser intensity than that of the front fixture to prevent an overlap of colors. This technique used with various color combinations gives the illusion of more plant material than is actually there.

When lighting specimen trees or shrubs, a flood lamp provides background light. This not only eliminates isolated areas but gives depth to the scene as well as illumination secondary to the main accent light. Frequently a flat or two-dimensional effect occurs with only one light source accenting a specimen planting. Two light sources on the individual subject prevents this. The units can be varied in distance and angle from the plant material. Lamps of unequal intensities or different colors highlight the plant shape.

Colored lamps emphasize plant material and add interest. When lighting branches, trunks, foliage or flowers, the predominate color will be brought out by using an analogous color of light. For example, a green light on green foliage. The technique of color is especially interesting during the winter dormancy of a garden. However, colored lamps can easily produce an unnatural scene. Therefore, it is wise to use discretion and plan carefully.

Colored lamps, particularly yellow and orange, reduce insect attraction in night gardens. Frequently these colors will not compliment plant material and will produce an undesirable effect. This could make the color lighting impractical and the main lighting should then be located away from the outdoor living area.

Use of light weight portable equipment allows for experimental trial lighting to determine the best features for highlighting as well as the best wattage



and lamp color. Use of this portable equipment reduces the necessity of expensive permanent electrical outlets.

The preceding techniques are by no means rules for garden lighting, but are

merely suggestions. The actual practice of night lighting in a garden is not restricted by definite rules. It is hoped that these suggested techniques will aid interested home owners in establishing their own lighting program.



DID YOU KNOW? ?

Did you know that an image of a sun-dial, an ornament used so often in landscape gardening years ago, was imprinted on the first United States Coinage? This sun-dial design was on the dollar which was cast in silver, then in bronze, then in pewter. It appeared on the copper cent and was printed on a paper note valued at 1/3 of a dollar. The sun-dial bore two inscriptions, "Fugio" and "Mind Your Business." The word "Fugio" gave a name of this currency which became known as the "Fugio dollar," the "Fugio note," and the "Fugio cent" (also known by collectors today as the Franklin cent for Benjamin Franklin, post-master general at that time).

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CHILDREN INFLUENCE GARDEN DESIGN

CARLTON B. GOODWIN

ROCKY MOUNTAIN ASSOCIATION OF LANDSCAPE ARCHITECTS

"Of course children influence garden design," says the cynic. "It's best to wait until they're grown and gone before attempting to have a pretty garden!" This need not be true at all. Hundreds of thousands of young homeowners with growing families are trying to mix children, pretty gardens and even pets. They are, currently, the nurseryman and gardenshop owner's best customers. So perhaps we can set down a few facts and principles which will make the ordeal easier for all concerned.

Nice gardens and children, yes, and even pets, can be combined if proper precautions are taken in original design. The normal temptation is to design the garden to suit adults with the balance given to the children. For real success reverse the procedure: arrange the space for children's activities and put the garden in what is left. You, the children, and the flowers will all be happier.

First of all, let's consider the needs of children. Most of their outdoor play is largely muscle activity—running, jumping, climbing, throwing. A separate play area, well away from your area of relaxation yet within sight of the house, will take care of this need. A gym set, sand box, and climbing bars would form a nucleus of equipment, to be replaced by tether ball pole and basketball hoop as the children grow older. Fine gravel or sand makes a good surface for this section of the garden.

Most children own many wheel toys, ranging from roller skates to the full size bicycle. These require a hard surfaced area for use and it's here that many garden-planners fail. Children get tired of going back and forth, they

like to go around. So plan it that way, with plenty of leeway on the curves. Arrange the path system so that bikes won't be tempted to cut corners, and provide raised curbs along flower beds. Spills do occur, so don't plant your most delicate begonias at a dangerous intersection!

Adult use of a garden is more or less restricted to specific periods of the day, such as late afternoon or evening, and to the more pleasant months of the year; but children are outside in all kinds of weather and at all times of the day. This requires another adjustment in planning your garden. Trees should be arranged to provide shade from about ten in the morning until late afternoon. Shade is especially necessary in areas of prolonged quiet activity, such as a sand box. Until trees reach a useful size, canvas canopies or umbrellas will help solve this problem. A roofed play shelter will often furnish a place to play "house," jacks, or other quiet games during the heat of the day.

In Colorado particularly, and especially in our tree-less sub-divisions, protection from the wind is desirable. An area protected on the north and west by the house, a decorative wall, or thick shrubbery can be enjoyed by both children and adults. If this is surfaced with brick, flagstone, or concrete, its usefulness is increased.

Even though they have the most attractive play area in town and a mile of go-around pathway there will be many times when you'll find your children (and their friends) right under your feet. They like to be where you are, so include furniture their size in your patio plans. Make any outdoor living area, such as a patio, large

enough for a crowd, and plant grass that can withstand the cartwheels and footprints of the younger set. And you can, of course, insist on a certain standard of conduct when the children are in your part of the garden. Let them save the rough-housing for their own play area.

Which brings us to the key to the whole secret of mixing gardens and children—appreciation and realization. If you yourself enjoy gardening enough to want a pretty yard you should have started (and probably did start) when your first child was very small to point out to him the wonder and beauty of growing things. Then as his appreciation grows, so will his realization of the needs of flowers for sun, water, care and protection. A child so indoctrinated in the world of gardening will not

deliberately destroy plants. Accidents will happen, of course, but even adults may carelessly trample a flower or break off a long-awaited bud.

Accidental damage and resulting disappointment can be kept to a minimum by careful planting. Place the most fragile and valuable plants in well-protected spots—away from heavily traveled paths. Use raised curbs whenever possible. These can be used for sitting also and will add variety and texture to your garden plan.

There can be no doubt, after considering these factors, that children *do* influence garden design. It is possible to have and enjoy both at the same time and much satisfaction will be yours when your youngsters grow up to be as enthusiastic about gardening as you are now.



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THE CHRYSANTHEMUM KING

BY LILYGALE FLEISCHER

Glen Eyrie! The words hung in the air like a melody, stirring the imagination with promising visions of a haunting, tantalizing dream of love in a setting of natural grandeur. I repeated the words softly, savoring their sweetness, for my heart hungered for the woodland beauty of my native state of Wisconsin. Here I was in face veil and duster, seated in the side-car attached to my husband's prized Harley-Davidson motorcycle, journeying over treacherous sandy roads. I was disappointed in the barrenness of the prairies but enthusiastic about the prospect of enjoying a visit with my husband's friends of many years standing, who operated a green house on the famed and secluded Glen Eyrie estate. I had been told the mansion was a real honest-to-goodness Tudor castle and I looked forward to the unveiling of that story.

We sighted the Garden of the Gods gateway from the upper Mesa Road. As we approached, the friendly lodge-keeper opened the Glen Eyrie gates for us, greeting us warmly and directing us up the hill upon which the greenhouses were situated.

We received a warm welcome there too and soon genial Billy Burghard and his charming dark-eyed wife Rosa, ushered us upstairs to their living quarters. Rosa baked such luscious pastries and cookies while Billy made such tasty wines, each visitor came away with a glowing memory of jovial hospitality.

I had secretly termed this a "watch-tower" home when I saw it from afar, so I enjoyed the panoramic view from every window except the kitchen which was blocked by a tall sandstone wall that surrounded the castle grounds.

I was assured of a tour of the castle at a future time, for now the owner,



The Greenhouses at Glen Eyrie.

Alexander Cochran, was occupying the adjoining pink stucco bungalow while awaiting his bride, Ganna Walska, the star of the Metropolitan Opera.

So my intuition had singled out love and romance after all! But it hadn't prepared me for the frustrated ending. Ganna Walska continued to linger on the east coast far longer than Alex Cochran dreamed she would, and he finally succumbed to the illness that had brought him west in the hope of conquering it. His bride never glimpsed this beautiful estate and the day arrived when I was privileged to tour the castle and window-shop the bungalow.

Warm-hearted Rosa and I became fast friends during the hours that Waldy and Billy roamed the greenhouses.

One day as we wandered down the lane toward the little house she had occupied as a bride not too many years back, I learned that she was the fourth child of a family of nine children residing in Boblingen, Germany. There her industry and skill in a knit wear manufacturing company had soon won her the position of forelady with 21 girls under her supervision. Quite a responsibility for a pretty nineteen year old. She had therefore welcomed the

opportunity of spending a vacation with her sister, proprietress of the Black Forest Inn. There she had met Billy, the youngest of the four Burghard brothers, who had come from the neighboring village of Altensteig to enjoy a stay at the same Inn. Soon Rosa was planning to marry this budding genius of the flower growing world.

She later visited his family who operated the general store and the town bank in Altensteig. All but Eugene William (Billy) planned to carry on their father's business. Billy found his niche at the Pfitzer Nursery at Stuttgart, as apprentice for three years. He later gathered experience at Erfurt, Germany; London, England; Glasgow, Scotland, and was then ready to embark for America.

Rosa Kipp's father did not approve of her marriage plans, observing that she could decide that issue when she became 21 years old. So Billy Burghard left for Toronto, Canada for a year's experience, while Rosa bided her time and visited the courthouse on her coming-of-age date to obtain the proper papers, apprising her father of the fact that she was America-bound to marry the man of her choice.

Billy Burghard, in the meantime, had migrated to New York to become the gardener on the Arnold Constable estate, and it was here he began growing chrysanthemums for exhibition and floral contests. He is credited with being the first grower to interrupt a long string of victories made in New York floral shows by John D. Rockefeller. The oil magnate's mums had taken first prizes from all competitors for five or six consecutive years, but Burghard's flowers shattered this record and he has never relinquished his reputation as a leading national grower.

He came to Colorado in the year 1907 to manage the Glen Eyrie greenhouses on the late General Palmer's estate, which then spread out over a

vast amount of the area around Manitou and the Garden of the Gods. Nestled at the foot of the mountains and surrounded by red sandstone cliffs are the greenhouses that were once used exclusively for the estate, but were later operated as a commercial range by Billy Burghard in 1912.

It was said that the entire range probably did not exceed 20,000 square feet, but part of it was in growing the large Turner mums and other varieties, all of them in a uniformly even, vigorous condition, and though there was not the chance there to select the pick of the crop that a larger grower gave, every plant was so uniformly excellent there was little need for choice.

How we marveled at the size and perfection of these mums! Every out-of-state autumn visitor was sure to be taken to the Glen Eyrie greenhouses to view these sturdy out-of-this-world type mums. We enjoyed watching Billy pack the cherished blooms for shipment. He used many layers of newspapers to line the box and topped them with a layer of green waxed paper. Bars were spaced at regular intervals to support the blossom heads, with blobs of cotton beneath these heads to prevent bruising in shipment. And last but not least he placed chunks of ice at the very center of the box on the strong and sturdy stems. His mums always came through in perfect condition.

The year of the devastating Pueblo flood was drawing to a close, but that autumn (1921), we rejoiced again in Billy Burghard's majestic blooms that took so many honors at Denver's 8th annual flower show. Forty thousand people crowded the Municipal Auditorium to view the colorful displays, and in particular, Billy's mammoth mums that won seven first prizes. It was said that his collection was unequalled anywhere in the country. Further honors awaited him for he was

awarded the silver medal for the best and largest mums at the National Flower Show at Washington, D.C. and won four firsts and two seconds at the Midwest Flower Show at Des Moines, Iowa against the stiffest kind of competition. Then he topped it all off by winning a number of firsts and several special prizes at the Chicago Exposition of Progress for mums that were eight feet tall and one foot across!

He further augmented his winnings with the award of five firsts, in addition to the sweepstakes prize, and a cup, as special prize, awarded by Mayor Bailey of Denver for the 12 largest blooms in the Denver Show.

He later won most of the blue ribbons and all of the trophies including the one awarded by the then Mayor Stapleton as well as the one from the Horticulture Society. As a result he was was lauded as the leading expert in the field. This was during his seventeenth year at Glen Eyrie.

The fall of 1924 he again won honors at the National Mum Show in Washington, D.C. for mums 11 inches and 12 inches in diameter, also winning the bronze medal at the New York Horticulture Show. Two years later he repeated his winnings in Des Moines when he won four first and two seconds, among them the Totty prize, gaining the Mitchell Silver Medal and the Foley cash prize award.

The year of 1927 saw the Phipps Championship cup, with two firsts and a fifth prize in his possession with the comment that he grew mums as carefully as he would the most delicate orchid—the results were amazing. Later the Alexander Cochran (Glen Eyrie) greenhouses with Billy Burghard as manager, took first place honors in St. Louis, first in the Colorado State Show, and Billy retained the medal from the Horticulture Society for chrysanthemums traveling the longest distance. At the National Flower Show in



Billy Burghard with prize cyclamen plant.

Houston, Texas he captured most of the first prizes for "mammoth blooms, apparently flawless, that held their own in the exposition." He treasures the letter which S. J. Mitchell, judge of awards, sent him which reads in part: "not a single damaged petal in the whole display. In judging mums for 35 years I have never seen anything quite so good as your masterful blooms. I can with pleasure announce them the highest quality in the show."

"I wish to congratulate you too on your fine winnings in Chicago, but what else could be expected when you seem to have inhaled the atmosphere of the Garden of the Gods, surely you must have absorbed a touch of the Divine hand being so near the Garden, in your production. The people here flocked about your exhibit at all times and you have won their highest approbation."

On another visit to the Burghards, we learned that Billy had sent Mrs. Hoover 18 twelve inch blooms and had received a reply that they had been the finest and largest to have been received at the White House. This news reached Burghard's home town in Stuttgart, Wurtemberg, Germany and was reprinted in the local papers naming him "Kings of the Mums," adding that his mum crop totaled 15,000 blossoms.

On January 22, 1932 Ripley featured a sketch of Burghard as King of the Chrysanthemums which appeared in the Lorain Times Herald and the Daily Republican Times of Ottawa, Illinois under the by-line of, *Did You Know?* A reader received a pleasant surprise when reading the column for she recognized the "King" as her uncle and excitedly informed the newspaper of that fact.

In February of the same year, Burghard exhibited 100 square feet of ciner-

aries at the Sam Houston Coliseum to 10,000 people, and he remembers the surprise he received while setting up his displays when a bystander asked to know the name of that variety of cineraria. He was told it was the Cremer strain, and the bystander answered: "I'm Cremer, the originator of that strain." He used the picture of that display in his ad in *The Florist's Review* for the next seven years. Burghard also received first prize on his daffodil and primula display (beside the cineraria one) at that show.

He had established the Burghard Floral Company at East Fontenaro in Colorado Springs some years before and though he still took top honors at top shows for Mr. Strake, the new owner of Glen Eyrie, he excelled in the growing of cyclamen plants for seed at his Colorado Springs range.

Suddenly with the coming of war, seed importations were restricted and Billy's cyclamen plants assumed a new



One of the Glen Eyrie greenhouses filled with blooming cyclamen plants.

importance for he began growing them for seed for the florist trade. Always the perfectionist, his flowering cyclamen won acclaim and fame as had his chrysanthemums. Five thousand blooming plants—some with 200 blossoms on one plant—in two block-long greenhouses inspired awe at the sight of so much beauty. But collecting seed pods, cleaning, sorting, weighing, and packaging require hours of overtime labor and endless patience. Originally a wild plant growing in shady places along streams in Switzerland and Persia, these hybrid plants, developed centuries ago, gained a new perfection in the Burghard range.

His seed rated 90 to 95 per cent germination while the imported seed rated only 60 to 70 per cent germination—all glory to Colorado sunshine and a plant specialist! He knew patience, for it takes the seed six months to mature, the normal seed being about the size as those of a radish. Five thousand blooming plants produce about one and a half million seeds—quite a lot to package. Planted, they required a six-week period to germinate, then eighteen months of growth

for saleable plants and again six months for the seed pods to mature.

He utilized the waiting time by specializing in perfecting other plants, such as tulips, anemones, daffodils, easter lilies, poinsettias, and the aforementioned mums and cinerarias, besides his geranium, fuchsia, and heliotrope trees! One forty-one year old fuschia tree boasts a trunk four inches in diameter and is six feet tall. All this in addition to the many roses and carnations grown. A grapefruit tree about six feet tall, content to grow in its allotted corner, has blossoms and fruit.

All three of his sons were drawn into the vortex of war. Two of them returned to their father's greenhouses, the older son chose a career in the post office. But a few years ago Rosa, who had viewed Pike's Peak so many times from her front porch, passed on. And Billy who thrived on the old German proverb "Start them young and keep the growing, like plants," still supervises the growing of his beloved flowers and plants, enjoying their perfection and his hard won reputation of plant specialist extraordinary and Chrysanthemum King.



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A ROSE BY ANY OTHER NAME

By ROBERT L. WOERNER

DIRECTOR, BOTANICAL GARDENS OF DENVER, INC.

During the past month the rose garden at the Denver Botanic Gardens has changed from an uninspiring field of cut back canes to a mass of luxuriant foliage and thousands of blooms. It is hard to predict the exact date, but sometime during the last half of June the rose garden will reach its spring peak, and thousands of the plants will be at the height of this seasons bloom. Each and every reader should make it a point to come and visit the garden sometime during this period of great floral activity.

To adequately describe what is in store for you in the rose garden this month, we must resort to a few statistics. There are 42 beds in the garden at the present time. These beds contain 3700 rose bushes of 145 different varieties. The relatively new grandiflora class includes 6 varieties, while the hybrid tea and floribunda classes are represented by 86 and 53 varieties respectively. All of the rose colors are to be found in the garden—the reds, pinks, and yellows, as well as a good proportion of bicolors or blends. Although white roses do not have a reputation for performing well in the sunny climate of Denver, several white varieties are in the garden, including the 1957 AARS White Bouquet.

The best performing roses in the garden during the 1956 season were Peace, Queen Elizabeth, Tiffany, and Mme. Henry Guillot and the floribundas Fanfare, Spartan, and Wild-

fire. We can expect these to be popular attractions this year, but certainly not to the exclusion of the many other varieties which closely follow them in their ratings. Some roses with lesser ratings may have more appeal because of color, height, foliage, or type of bloom. The majority of the plants are in blocks of 20 or 30 so that they can be judged fairly, disregarding occasional weak plants.

For those who have visited the gardens many times in previous seasons, we have some new varieties to offer. The most exciting of these are the four 1958 AARS winners which are being tested in the garden this year for the first time. One is a white hybrid tea. We hope this performs well for us, since we need more good white roses for this climate. The other selections are floribundas—one an orange-red, another a golden-yellow, and a third a light pink. These will be something to watch, for they will be much in demand when they are put on the market next year. The rose garden is the place to preview these and other roses for next year's garden planning.

Other new beds this year will include five additional floribundas. White Bouquet, the first white floribunda to receive the All-America award (1957) will be represented along with another new white floribunda, a numbered introduction by Jackson and Perkins. Frensham (dark red), Amy (satin-pink), and Starlet

(Yellow) are other new floribundas. Frensham has an ARS rating this year of 8.6, so it should perform well and attract some attention.

Floribundas deserve much more use in landscaping, since they make nice informal hedges and tall border edgings. They can even be used in properly constructed planter boxes. With 53 varieties to choose from in the rose garden, the right color and height can be selected. Most of the floribundas grow about 2 to 3 feet in height and can be used where vigorous hybrid teas cannot.

For those who prefer the hybrid teas with their large flowers on single stems, we now have 86 varieties of which 10 are new this year. Older varieties which we have not had in the garden previously are K. A. Viktoria (an old reliable white), Mrs. Sam McGredy (an orange blend), and Pink Favorite and Pink Dawn (both a medium pink shade). Newer introductions are Arlene Francis (yellow), Isabell Harkness (yellow), Pink Frost (another medium pink), and The Duke (a red-gold bicolor).

We cannot do justice to the rose garden in this brief report. We have mentioned only the new roses which have been added this year along with some of the all-time favorites. All of the new class of grandiflora roses are in the garden—Dean Collins, Buccaneer, Carrousel, Montezuma, Queen Elizabeth, and Roundelay. In addition there are many, many plants of our total of 145 varieties that will be in their full glory later this month. We urge everyone to come out and visit the rose garden soon.

Spring Plantings

In addition to the rose garden, many other plantings of note have been made in the botanical gardens this spring. In the Glenmore Pinetum we have added 2 larches, 2 firs, 2 spruces, 5 pines, and 8 junipers. These plants

were a gift from Mr. Robert E. More and are a significant addition to the pinetum which includes more than two hundred coniferous plants.

The Men's Garden Clubs of Colorado have contributed an additional 24 cherries, plums, and peaches to the collection which they were responsible for starting last year. The Cottonwood Garden Shop contributed an additional two almondcherries to this group. Many of the plants added to this collection this spring were good size plants, giving promise of a good bloom from these flowering trees and shrubs next year.

The birch and alder collection was started with a gray birch, gift of the Cottonwood Garden Shop and 12 other birches and alders, gift of Mr. William H. Ferguson, who is the sponsor of this collection. This group is being planted along the South Creek which will be completed this year.

Plantings of native materials were made in the box canyon. These plants were collected from the wild by the botanic garden's staff. Hawthorn, aspen, birch, alder, hazel, dogwood, willow and other streamside plants have been established in the canyon. Oak, sumac, currant, and other native plants have been planted on the hotter south facing slopes in proper ecological sequence. The planting in this area will be continued with the addition of other shrubs and herbaceous plants characteristic of this type of canyon stream association.

Several hundred chrysanthemum plants from the park department were added to the prepared beds in back of the iris garden. Together with the 400 mums planted last fall from the Cheyenne Horticultural Field Station, these should add much interest to the iris garden area, for their fall bloom will follow the summer color of the budleias and complete the colorful season that was begun with the dwarf and

pumila iris and is being continued this month by the large planting of tall bearded iris.

Other spring planting included the transplanting of many roses and the consolidation of the deciduous "ever-

green" group along the road north of the pine collection. This group, previously planted in several different areas includes the larches, goldenlarch, ginkgo, baldcypress, and the metasequoia.



USE OF SAWDUST MULCH HAS GREAT POSSIBILITIES

The Colorado A. & M. College has this to say about sawdust mulch. "Sawdust is a good mulch, conserving moisture, suppressing weeds, and improving heavy soils when plowed under. It has no significant effect on the pH of the soil. Sawdust may cause a nitrogen deficiency and plants may appear burned when it is mixed with the soil. This can be corrected by adding nitrogen in fall or spring so that the sawdust will contain 1.5 percent nitrogen. For example, add 7 or 8 pounds of ammonium sulfate to each 100 pounds of sawdust incorporated with the soil, or about 2½ pounds of ammonium sulfate per bushel of sawdust.

"A 1-inch layer of mulch gives maximum water-conserving and soil-cooling effects around shallow-rooted crops such as strawberries. Heavier mulching, up to several inches deep, may be used for deeper rooted perennial plants such as asparagus. Apply after the plants are several inches high and weeds are under control. One cubic yard of sawdust will provide a 1-inch mulch over 324 square feet of soil."

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PLASTIC PLACE MATS

BY MARGARET HORNE
(HOME GARDEN CLUB)

After completing the lampshades of plastic and pressed leaves and flowers described in the December 1956 issue of *The Green Thumb*, our club embarked on a second project using similar materials to prepare attractive place mats for indoor or outdoor dining. These mats are durable, original, and easy to make.

First prepare a paper pattern, twelve inches by eighteen inches, with rounded corners. Then with a small eyelet punch cut holes three-fourths of an inch apart all around the edge of the pattern. Sheets of clear acetate for the top surface of the mats are then cut and punched to fit the pattern. Use paper clips to temporarily attach the pattern to the acetate while punching the holes.

For each mat, one piece of the clear cellulose acetate (.010 inch thick), one piece of Japanese rice paper, and one piece of white cardboard or plain plastic linoleum, must be cut to the size of the pattern. Linoleum is preferred to cardboard as a backing for the mat because it can be wiped clean with a damp cloth. But if linoleum is used, a piece of white paper must be placed over the dark reverse side which would otherwise show through the rice paper in the finished mat. Rice paper comes in all colors, but white or cream

makes the best background for the pressed material.

A suitable design is prepared for the mat from pressed flowers, grasses, and leaves. Butterflies are a nice addition if they can be obtained. But do not use too much material and try to carry out the colors of the butterfly or use a butterfly with some of the colors of the flowers in the arrangement. These are prepared for mounting by pressing them between facial tissues in books (a telephone directory is best) with heavy weights placed on top of them. Gather grasses in different shades of green and tan and press these between newspapers. Autumn leaves also make effective dried material.

Some flowers and all leaves will fade when dried, so better results are obtained if they are colored. Dissolve crayons in a small quantity of cleaning fluid for tinting. After the pieces have dried, spray or paint them with a clear plastic. Green plastic is available for green leaves and grasses while clear plastic is good for other grasses. The plastic coating keeps the dried material from shattering.

Assemble the design first on the pattern sheet, then transfer it to the rice paper where it is glued in place with white or clear cement. Most grasses should be attached before the other ma-



terials. If the grasses are fine, draw them across a piece of glass which has been spread with a thin coating of glue. Then transfer the grass to the rice paper and press down with a piece of facial tissue which absorbs the extra glue.

After the finished design has dried, place the rice paper on the backing and cover with the acetate. Hold all of the pieces together with paper clips, trimming if necessary, and commence

punching the holes through the unpunched sheets as the mat is laced. Use plastic lacing and tie the ends at the back. This lacing comes in all colors, so select one that harmonizes with your dining room or dishes.

Make four or six mats for place settings and one for the center of the table. Many interesting and original designs are possible and the place mats are sure to become conversational pieces.



SECOND PLASTIC MULCHES SHOWING WELL

Kentucky Wonder beans planted this year through plastic mulches used last year for garden work came through earlier and had a better stand than beans on the other plots according to observations of E. M. Emmert, Kentucky Agricultural Experiment Station horticulturist.

To test claims that black plastic mulch will last up to four years, he left some of the plastic on the experimental-plot ground last year, although crop residue was removed. This spring the beans were planted through the same holes in the plastic with a hand corn-planter; these second-year plots were then compared with the "no mulch" plots and the freshly laid plastic mulch plots.

The only cultivation on the second-year plots, Emmert says, was between the plastic strips. Soil underneath the second-year plastic was not disturbed. This soil later was examined. It was found more friable and in a finer, moister condition than that under other mulch treatments. In addition, nitrogen and other nutrients accumulated due to non-leaching, and conditions were favorable earlier for nitrification. Emmert says these "may possibly explain" the excellent stand and early growth of seed planted through the old plastic.



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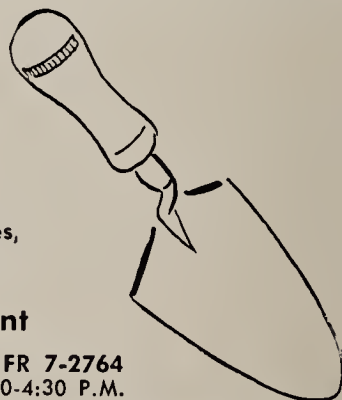
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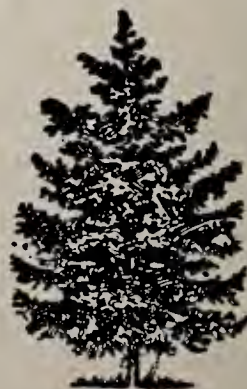
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FOLIAGE FOR SUBSTANCE AND GLAMOUR

BY CHARLES L. TROUTT

Mr. Troutt, a professional gardener for 50 years, has been in charge of Elitch Gardens for the past 18 years. The gardens are patterned after Kew Gardens in England, but Mr. Troutt plans the color schemes and types of plants to be used. Before Elitch's, he was in charge of the landscaping at Wichita University and later spent 14 years in charge of the Wichita Country Club grounds. He is also a well-known garden club lecturer in Denver.

Foliage plays an important part in landscape design, and in my opinion there is no marginal line for the planting or placing of foliage in a garden; individual taste is the determining factor. In planning gardens, regardless of size or space, many foliage plants that would be nice to use (especially among the perennials) will not tolerate this climate. However, there are some shrubs and trees with attractive and interesting foliage that do quite well out here. A few of these are lilac, forsythia, wild currant, horsechestnut, mulberry, Chinese elm, and many species of juniper.

There are also a number of hardy ivies which, if they are properly pruned, will stand upright six to ten inches for a brightening influence in any garden. The ones that I have tried successfully are Silver Queen, Hans, Baltic, Austria, Curly Locks, and Gold Dust. Variegated types are not hardy here—especially variegated English ivy, but its propagation is so easy that it is worth treating as an annual. Start it in flats in April. By May it will be large enough to use outdoors without danger of killing frost. The two-toned neutral green of its leaves is effective

when combined with tuberous begonias, salvia, or other annuals that have a tendency to defoliate during the summer months.

For bare spots under trees and shrubs, periwinkle (*Vinca minor*) and its cousin, variegated periwinkle (*Vinca major variegata*) make exceedingly good groundcovers and lend pleasing contrast in rock gardens where they help break the harshness of the bare rocks. For this reason, they are also interesting on low stone walls.

Many types of begonias are good foliage plants, especially the annual Rex varieties. Two that I have used successfully for a number of years in Elitch's Gardens are Angel Wing and Beef Steak.

The foliage of the canna is attractive in a corner of a garden, along a driveway, or as a screen for undesirable rocks. It is particularly nice because it changes with the seasons from light and dark green to red and bronze.

Caladium polls a large vote in the floriculture field. Tall, broad-leaved elephantsear (*Colocasia*), waving in full sunlight, lends softness. Here again, are many varieties in dozens of shades—off-white, neutral, variegated, and others, from which to choose. Last but not least is the many-colored coleus, one of the most effective of the foliage annuals. It grows well in sun or shade.

In closing, let me say that when you plant a garden you put into it your personality as well as your most cherished plants. Therefore, it should be a place for quiet repose, a place for dreaming, a place where time is turned back, and a place where you are king or queen in a castle all your own.

OLD-FASHIONED PLANTS HAVE EXCITING NEW LOOK

The best-loved of the old-fashioned plants of the past have taken on an exciting glamour as new varieties have been developed in recent years. Some of these old-time plants are iris, peonies, chrysanthemums, lilacs, and those of similar perennial character. Never having lost their attractiveness from the public's viewpoint, today the flowers are larger and more colorful, and the plants more popular than ever.

The outstanding development in iris has been the great wealth of new colors and color combinations and the increase in the size of the flowers, rivaling in splendor, and looking like, orchids. Colors now range from white to the deeper shades with some of the most fascinating color combinations in the flower world. The peonies, which run from white to pink and the dark shades, are especially interesting because of new flower and plant forms.

Phlox is another old-timer that now has larger florets more closely formed in what amounts to a bouquet on a single stem. Brilliant crimsons and pinks and dark reds add to their lustrous beauty. Phlox is one of the most colorful of late summer plants.

Perhaps in chrysanthemums, has come the greatest development of all, with many new shades of color and flowers of large size that can be used for outstanding table decorations in the home. Their lasting qualities, when cut, compare with those of the rose.

Lilacs now have larger and better flowers of many different shades, and have a more delightful aroma. The plant forms likewise are more varied.

All of these plants have been developed until they are a far cry from those of grandmother's day. Yet they have universal appeal that probably will last for all time.



Do you know Aster luteus? It is really the yellow Michaelmas daisy. It flowers in August and September in sprays of small yellow flowers, rather like those of a goldenrod but better in color, from cream to yellow-lemon yellow. It grows to under three feet in height.

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Seasonal Suggestions

June marks the close of a short spring and the beginning of summer in this mile high country. It brings with it the grandeur of roses and other blooms in the city and masses of wild flowers in the mountains. It is a time for relaxation and enjoyment of our spring labors in the garden.

Sure, there are things to be done in the garden, but my first suggestion is to plan to have a weekend or two set aside for trips into our majestic mountains. Perhaps just a picnic in our famed Denver mountain parks or possibly a day's trip to places like Central City, Pikes Peak, Mount Evans, or Leadville. Or try a weekend trip over Trail Ridge in Rocky Mountain National Park. Hope you'll take this idea for more than just a suggestion, for we, here in Colorado, are surrounded by beauty. All we have to do is get out and enjoy it. Don't forget to take your camera and fishing pole along. Hope you all have a litter bag handy in your cars so that you can do your part in keeping Colorado clean, and please remember to be careful with your campfires, cigarettes, and matches.

Now back to the garden. If you have planned and planted during April and May, you are probably looking forward to many a pleasant evening in your outdoor living room. Try your hand at outdoor lighting and you'll find a few tips on this subject in Chuck Fischer's article on page 175. Also try using more white flowers, such as petunias, around your patio area for greater evening beauty.

Our outdoor carpeting of emerald lawns needs some attention this month. Watering is probably the most important factor. One watering a week should be sufficient if you water thoroughly and deeply. Of course south slopes and those pesky edges along the walks and drive ways will probably need more attention. Aeration often expedites the water penetration in these areas.

It's time for the second application of lead arsenate or chlordane for crabgrass control. A walk around the yard once a week with a killercane, or a squirt gun filled with 2-4-D will keep the dandelions and other broadleaf weeds in check.

Early blooming shrubs, such as lilacs, should be trimmed before they set seed if you want to have good bloom next year. Watch the vigorous new growth on trees and shrubs. Keep them trimmed to a safe height over streets and walks. It's safe to trim your maples, birches, and like trees now. All indications point to a bumper crop of garden insects this year. Keep a close watch on evergreens and roses for spider mites and aphids. Malathion is an effective insecticide for these two pests. If other insects or diseases become a problem, call me at Horticulture House, TA 5-3410 for information on control measures.

Two special activities warrant your consideration this month. The first is our Look and Learn Tour, Wednesday, June 12. An excellent opportunity to gain new ideas for your garden first hand. The second activity is the Annual Rose Show sponsored by the Denver Rose Society at the Ford Motor Company, 2650 East 40th Avenue. This show will be open to the public from 2:00 p.m. to 5:30 p.m. June 30. If you like roses, you'll find the best at this show.—Pat.



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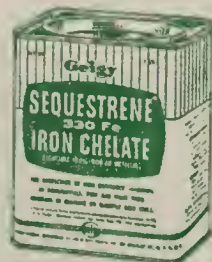
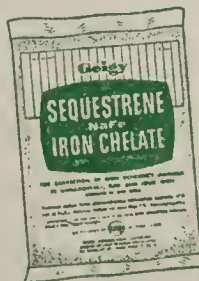


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The Green Thumb

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July, 1957

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The Green Thumb

Vol. 14

July, 1957

No. 6

Colorado Forestry and Horticulture Association

Organized in 1884



"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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Assistant Secretary-Treasurer	Charles C. Fischer
Editor	Patrick J. Gallavan

LOOK AND LEARN GARDEN TOURS

Our second and third garden tours are coming up this month on the 10th and 31st. These will be hot weather gardens in the new Lakeridge Road and Bowmar area. Any of the gardens may be visited in any order between 10:00 a.m. and 5:00 p.m. on the above mentioned dates. Tickets are available at Horticulture House, 1355 Bannock, TAbor 5-3410 or at each of the gardens. Experts will be on hand as always to answer questions.

WEDNESDAY JULY 10

Mr. and Mrs. Charles G. Keim — 4575 Lakeridge Road
Mr. and Mrs. David C. Bole, Jr. — 4501 Lakeridge Road
Mr. and Mrs. F. W. Meyer — 4475 Lakeridge Road
Dr. and Mrs. George W. Holt — 5500 Ridge Trail Road, Bowmar
Dr. and Mrs. E. C. Claus — 5235 Sky Trail Road, Bowmar
Mr. and Mrs. Paul Ambrose — 5171 Juniper Road, Bowmar
Mr. and Mrs. David Dunklee — 5555 Beach Road, Bowmar

WEDNESDAY, JULY 31

Mr. and Mrs. Thomas P. Campbell — 840 Gaylord Street
Mrs. Louise C. Knight — 825 Vine Street
Mr. and Mrs. Gilbert J. Mueller — 555 Race Street
Mr. and Mrs. J. Churchill Owen — 565 Circle Drive
Mr. and Mrs. N. Rulison Knox — 2116 East Fourth Avenue
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Mr. and Mrs. Bayard K. Sweeney — 425 Westwood Drive

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MEMO

Calendar of Events

July 1—"Fun With Flowers" first Monday of each month, 10:00 a.m. Woman's Club, 1437 Glenarm Place.

July 3—Botany Club meets the first Wednesday of each month at 7:30 p.m. at Horticulture House.

July 10—Organic Garden Club meets the second Wednesday of each month, 8:00 p.m. Horticulture House.

June 26—Pat Gallavan, Horticulturist on KRMA TV Channel 6 at 7:30 p.m. each Wednesday evening for 10 weeks.

July 10 & 31—Look and Learn Garden Tours. Tickets available at Horticulture House. Call TAbor 5-3410.

NEWS RELEASE

Colorado Gladiolus Society will present its 4th Glad Show from 2 - 5:30 p.m. in the Mile High Lobby, 1700 Broadway, August 11. The Theme will be "Glad Melodies." Admission is free. The public is invited.



PEEK AT THE MAIL

Green Thumb wins prize!

Dear Mr. Gallavan: Congratulations! Your magazine *The Green Thumb* has won second prize for content and third prize for presentation in class 4 of the Flower Grower Garden Club Publications Awards. Your awards, one copy of *The Art of Home Landscaping* by Garrett Eckbo and one copy of *The Art*

of *Growing Miniature Trees, Plants and Landscapes* by Tatsuo Ishimoto, will be sent to you shortly.

Thank you for helping to make this contest so successful.

The sturdy folder pictured below holds 12 issues of the *Green Thumb* for easy reference on your library shelves. It is available at Horticulture House for only 50 cents.



IN MEMORIAM MYRTLE ROSS DAVIS

A garden is a lovesome thing God wot!

Rose plot,

Fringed pool,

Ferned grot—

The veriest school

Of peace; and yet the fool

Contentds that God is not—

*Not God! in Gardens! when the eve
is cool?*

Nay but I have asighn:

*'Tis very sure God walks in mine**

Myrtle Ross Davis, a native Coloradoan, was an outstanding example of the kind of person who lived by a code of true friendship, consideration of the needs of others, and eagerness to be helpful, to the extent that no one ever heard a word other than praise of her. Her friendship and sphere of influence, a very special kind of quiet, self-effacing influence, extended to countless individuals who not only learned better gardening but also a refreshing new attitude towards landscape beautification from her. All of those who visited her home and garden, heard her garden talks and read her articles have fond memories of her.

Mrs. Davis was an active member in numerous organizations devoted to improving beauty through better plants and plantings. As a charter member of the Colorado Forestry and Horticulture Association, she did much during the first few years to bring in new members. She also contributed numerous articles to *The Green Thumb*, helped with garden tours, served on committees and freely gave help in other ways too numerous to mention. She received little personal recognition for her generous contributions, however, because she was not one to stand in the limelight.

Members of the Home Garden Club will long remember her great contribu-

**My Garden, Thomas Edward Brown.*



tions to their program, which helped to set the high standards of education and service for which that organization is famous. As one who was equally interested in both outdoor and indoor gardening, she was interested in the culture of many species of natives and introduced plants of beauty. Among other activities she experimented with orchid culture and shared her interest with her fellow-members in the Denver Orchid Society.

Her interest in plants extended far beyond the cultivated gardens into the natural landscapes of her beloved Colo-

rado. Many, many trips were taken with her husband to study and photograph alpine flowers and other natural features of this region. She was a strong supporter of the thesis that this is one of the most beautiful of states and that its beauty should be appreciated and protected.

We who have known her feel that

it was such a real privilege to have shared friendship with one who earned such universal admiration and respect that the memory eases in a small degree our sorrow in losing her.

In tribute to Mrs. Davis, the following article is a reprint from the July 1944 Green Thumb.

FLOWERS ABOVE THE CLOUDS

By MYRTLE ROSS DAVIS

Many Colorado people lament the fact that rhododendrons, azaleas, dogwood, laurel, arbutus and many other beautiful flowers do not grow here. Many regions of the United States have flowers which are famous and one thinks of them as being associated with certain states or areas of the country.

The high elevation areas of the Rocky Mountains and particularly Colorado, as it has the highest mountains, should be known the world over by its alpine flowers but for some reason these rare and exquisite flowers have missed their share of publicity.

It is on the very tops of the Rocky Mountains, in a land too severe for trees, that alpine flowers grow. If you have climbed in this high country up next to the sky, or if you have gone to the top of Pike's Peak by automobile or by the little old cog train, you have had at least the opportunity of seeing some of these hardy little plants. They flower in a world of snow and burning sun, rain and drought, avalanche and blizzard, and many of them are exactly the same species as those growing within the arctic circle.

In the towering rocks of the Rocky Mountains between 11,000 and 14,000 feet above the sea, the traveler finds it difficult to breathe enough of the rarified air to keep from gasping for breath and upon the slightest exertion is conscious of his pounding heart. Strong icy winds blow; snow, hail, and sleet

fall in the summertime; snow banks and glaciers remain all the year around, and freezing temperatures prevail nearly every night.

Rocky Mountain sheep and ptarmigan live up there; there is grassland or tundra; there are meadows and rock fields with environment growing steadily more severe until on the highest peaks (over 14,000 feet) arctic conditions are experienced.

As snow recedes, these dwarf, richly-colored flowers burst into bloom. The yellow snow buttercups and the white marsh-marigolds may be found breaking through the snow to bloom. They have no time to lose as their summer of only a few weeks is soon gone. The little bright blue alpine forgetmenot, the moss campion with its cushion-like growth starred with pink blossoms, the alpine sun flower with its big golden head and its covering of shaggy white hair, the mountain dryad with its eight creamy petals, the tiny gay rose-colored fairy primrose, the fragrant rock jasmine, and many more of these extremely interesting plants are at home on these stormy heights.

In July the high rock fields, which appear at a little distance to be barren wastes, will be found on close examination to be a beautiful natural rock garden; a riot of bright colorful bloom, from the cushion-like plants nestling close to the earth, fills the spaces between the rocks. The effect is that of a

brilliant crazyquilt spread out over the mountainside.

No where is the beauty of wild flowers more strikingly revealed than in the alpine region of the Rocky Mountains. If you love flowers and if you go there to see them you will be thrilled by the vivid coloring and life these tiny blooms give to the drab background of rock, and if you stop to think about it, you will be interested in the miracle of these little plants winning in their

struggle for life on these inhospitable mountain tops.

Surely after knowing the alpine, Coloradoans will realize that we have wild flowers which should make our state botanically famous. Perhaps they would not trade them for those of any other state. When adequately publicized, people may make pilgrimages from all over the world to see Colorado's flowers above the clouds.



LAWN WEEDING

By ROBERT W. SCHERY, DIRECTOR
BETTER LAWN AND TURF INSTITUTE

The cherished Kentucky bluegrass lawn faces in summer perhaps its greatest trial. Bluegrass slows its pace as temperatures reach the 90s; competing weeds don't. Most serious summer weeds are coarse annuals which must "make hay while the sun shines." Only by vigorous summer growth can they complete their life cycle and produce seed before frost.

Bluegrass will ride out the competition, revive almost miraculously with cooling shorter days of autumn. But for good lawn appearance summer weeds must be restrained.

If the bluegrass has been kept tall and thick, weed problems are likely trivial and can be solved by incidental hand pulling. If infestation is at all heavy, chances are chemical weeding, combined with high mowing (1½"-3"), will be the most effective solution.

The chemical 2,4-D is the active ingredient in most weed killers, except against crabgrass. Small traces sprayed or spread when weeds are growing vigorously, causes gradual withering and disappearance. Follow package instructions exactly, lest traces drift to ornamentals or improper rates be applied.

Buckhorns, plantains, dandelions and other familiar weeds fall readily before 2,4-D; but knotweed and spurge may require repeat applications. All weeds succumb easily if treated early, — i.e. before they are old and tough, — and when growing actively (as after a rain or sprinkling).

Clover flowering will be checked by the usual 2,4-D but plants will not be killed. To eliminate clover and wood sorrel, special chemicals related to 2,4-D can be purchased at your garden store. None of the weed killers will harm good lawn grass if used as directed.

For crabgrass, which is resistant to 2,4-D, other chemicals are used. Two of the more recent are PMA and Methyl Arsonate. The former gradually eliminates crabgrass, but must be used in a series of several treatments. The latter decimates crabgrass more abruptly with two applications about one week apart.



ARRANGEMENT OF THE MONTH

Pink four o'clocks and iris leaves arranged in a wooden bowl make an attractive and long lasting summer bouquet. The four o'clocks, as their name implies, open in late afternoon and close again the following morning, but while open, they fill the evening air with a lovely fragrance and freshness. This is an arrangement that will stay fresh at least a week.

—Photo and arrangement by Mr. and Mrs. Turnure

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VIRGINIA DALE STAGE STATION THREATENED

By FRED R. JOHNSON

The Virginia Dale Station, a valuable historic relic of the Overland Route to California, may be endangered by a relocation of U. S. Highway 287. The station, located about $\frac{3}{4}$ of a mile from the highway, about 35 miles northwest of Fort Collins and 5 miles from the Colorado-Wyoming state line, has been proposed as a state park.

The Virginia Dale Station was the scene of some colorful history in the early days of the West. The log station building, stables, and other appurtenances were built in 1862 and for five years or until the completion of the Union Pacific Railroad through Cheyenne, it was a division headquarters for the Overland Stage Line.

In recent years the old building has been used for community activities — dances, farm meetings, etc. with the Virginia Dale Home Demonstration club taking the leading role.

The buildings, together with the adjacent beautiful valley and wooded hills, are admirably suited for park purposes, and the historical significance is an additional factor in its favor for this purpose.

Much has also been written about Jack Slade, the colorful figure who was the first division and station agent. On one hand he was given credit for getting the U. S. mails through on time, despite occasional Indian attacks and stage robbers. On the other hand he had the reputation of being a gambler and desperado, a tough character when drunk, and rumor circulated that he was in cahoots with road agents. Be this true or not, he was relieved of his duties in 1863.

The State Park and Recreation Board, established by the 1957 General Assembly will not function until July 1. In the meantime Virginia Dales residents are concerned lest the beauty and historic value of this area be destroyed by re-routing U.S. 287 close to the buildings and across the graves of three pioneers buried here. Location stakes for the new route have been set through the area.

This incident again demonstrates the need for a Park Board and a director to protect scenic spots and heirlooms of our early settlements before it is too late. The Colorado Forestry and Horticulture Association has gone on record time and again in favor of the preservation of sites such as this.



IN MEMORIAM

Lou W. Appeldorn, whose charming garden was on last year's Look and Learn Garden Tours, passed away May 16, 1957 after a long illness. Mr. Appeldorn was an enthusiastic gardener, a loyal friend of our Association, and an active member of the Denver Rose Society where he served as president in 1953 and 1954 as well as on many of its committees. He was named as Consulting Rosarian in 1956 and the 1957 year book of the Rose Society was dedicated to him. His loss is severely felt.

SOME ARISTOCRATS

By W. W. WILLARD

To the naturalist or casual wild flower enthusiast, the native orchid is an aristocrat of aristocrats. Orchids are widely distributed, but are found only in places and in habitats peculiar to their needs. The majority of them are in the tropics. From this it is assumed that moisture and temperature are essential. Of the 10,000 known orchids, about 146 species are native to the U.S. and Canada with about 50 of these in Michigan which is almost surrounded by the Great Lakes; this may have some influence numerically.

Some orchids are perennial herbs. A great many grow upon trees (epiphytic), but are not parasitic as they produce green leaves that guarantee them an independent life. The aerial roots of epiphytic orchids absorb moisture which is then transmitted to the inner tissues. However, the coralroots have neither green leaves nor true roots, but live upon decayed organic matter in the forest floor. They are called saprophytes. Technically, a biological study of the orchid reveals a highly specialized adaptation for cross-pollination as shown in the organs of reproduction. According to Darwin, there is a union of stamens and pistils in one organ, distinguishing it from related orders.

A few orchids are useful to mankind. (*Vanilla fragrans*) is the source of an extract used as flavoring in every household. Pharmaceutical houses use the powdered root of cypripedium in preparing nerve medicine. Likewise, coralroot and rattlesnakeplantain are used in drugs. But some people claim the cypripediums are poisonous to handle. The writer has never found this to be so nor has he suffered toxic effects which does not prove, however, that others are not allergic to the filamentous fungus or acid contents of the plant hairs when they come in contact with



Yellow Ladyslipper

the skin. Nature seems to use this repellent to protect the plant during the pollination period. Surely Nature endeavors to protect its efforts to recreate while we go about promiscuously plucking plants just to see them expire.

According to Darwin, certain orchids require particular insects for fertilization, in keeping with the length of the nectaries or glands of an orchid. If the anatomy of the insect and the structure of the flower do not coincide, fertilization will not take place. Once the flowers are fertilized, blossoms must be allowed to remain and mature so that seeds may result. Picking prevents reproduction; especially is this true in the orchid family.

Morris and Eames divided the native orchids into four generic groups.

These are:

1. The cypripediums. a) Ramshead (*C. arietinum*) is rare, grows in cool swamps, is the smallest of the species growing about 6 to 10 inches high, and is located chiefly in the Great Lakes region. b) *C. parviflorum* and its variety *pubescens* (yellow). The larger name is the smaller of the two yellows. Both are at home in the wild flower garden if their habitat is transferred too. The very first wild flower that I picked was a yellow ladyslipper. Its beauty was so irresistible that I felt the urge to show it. Before I was able to return home it had wilted beyond recovery—a good reason for never picking wild flowers. c) Moccasin, or stemless ladyslipper (*C. acaule*), sometimes called pink ladyslipper. It is the most cosmopolitan of all cypripediums in its range, and loves extremely acid soil such as swamps or the timberline limits of our mountains. It differs from all others in shape, size, structure, and growth. d) *Candidum*, a small white orchid much like the Ramshead in size but grows in marl or limestone or alkaline habitat. e) Showy ladyslipper (*C. reginae*) is the most superb of all cyps. It grows in deep sphagnum bogs where it survives, or it sometimes prefers an alkaline or neutral habitat, if such is close to a swampy area. Look for it in June or July but let it “waste its sweetness upon the desert air.” The farther north it grows the later it blooms. Each season it sends up a new pip (rootstalk) for next year’s stem and blossom to carry on its existence.

If you wish these aristocrats in your wild flower garden, study their habitats. At least eight are available in the Colorado region, or they may be secured from reliable wild flower nurseries. Of all the orchids, the ladyslipper should initiate your nature study experiments.

Here is a good place to insert the nine Colorado orchids: two yellow

cypripediums, coralroot and rattlesnake-plantain (*Goodyera*), green bog orchis, twayblade (*Liparis*), ladiestresses (*Spiranthes*), calypso (*Calypso bulbosa*).* Harrington records a 10th, helleborine (*Epictatis*). Calypso is the most beautiful of terrestrial orchids, blooming soon after the snow-line vanishes.

2. The second group contains the orchises and thirty rein orchids or habernarias. Of these my findings have been limited to *O. spectabilis*, *H. hookeri*, *H. psychodes*, *H. fimbriato*, *H. ciliaris*, *H. blephariglottis*, *H. lacera* of this wonderful family of orchids.

3 The third division includes twayblade (*Liparis*), *Pogonia*, *Arethusa*, *Calopogon*, *Spiranthes*, and *Epipactis*. Only a few of these are present in Colorado.

4. This fourth group consists of adderstongue, calypso, crane-fly, putty-



Calypso

root, coralroot, crested coralroot. In all of these species the naturalist needs a pencil and a camera. He needs a description of the habitat for in years hence the pictures of these rarest of flowers will refurbish his memory in having found the aristocracy of the floral kingdom. All have distinctive characteristics, but best of all a cloying fra-

grance never to be forgotten. It is to be hoped that the new botanical garden project for Denver will include these orchids or as many as can find suitable and adaptable habitats. Others may be acclimated in the proposed conservatory.

* M. Walter Pesman, *Meet the Natives*.



WHAT NEXT?

We've always suspected that some wise-acre would upset the story of the "bees and the birds." And here it has come to pass.

There is an electric "bee pollinator." It is actually being used by many tomato growers to fertilize all the tomato flowers. The early ones have always been known to be difficult; now the grower puts the bee out of commission altogether.

The "Electric Bee" is battery-operated. It looks like a little box, something like a cigar box with a button to be pressed by your thumb and with a long antenna to be placed in contact with the stem of the flower truss. This antenna separates the pollen masses and thus aids pollination.

Tests have shown that one battery would pollinate over half a million flower trusses, probably more.

What next? — M. W. P.



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INTERESTING TREES AND SHRUBS OF COLORADO

By M. WALTER PESMAN

The word "interesting" is a handy word. It fills in beautifully when you don't want to commit yourself about the true value of a thing you are supposed to admire. "Interesting" covers a multitude of sins; it means neither beautiful nor attractive—not even worth while.

So, if I write about "interesting" trees and shrubs, I can cover a great many types. They might be interesting to me, not you.

There is, however, another thing I read between the lines in a request to treat interesting plant material. Generally this means that common, everyday types should not be included. They have stopped being of interest to us. So we can omit such staple shrubs as *Spirea vanhouttei*, one of my great favorites because it can be used in so many situations without letting us down. And we can likewise omit Chinese elms, one of my favorite *aversions* because they can hardly ever be used without letting us down.

In general then, we won't mention here the general run of nursery-stock that is listed in local catalogs. They are the trees and the shrubs that have proved their worth and that sell themselves as staple products. And yet, the nurseryman is apt to get "stuck" with the unusual kinds that are seldom asked for. This presents a vicious circle: the customer does not ask for them because generally the nurserymen do not carry them and vice versa.

From here it is only one step to another conclusion: often a false one. A local landscape contractor blandly told a client of mine that I didn't know my business when I specified red oaks because they cannot be safe here if Denver nurserymen do not carry them. (In this case it meant the particular nurseryman who was giving the con-

tractor an especially fat discount.)

At this point let me hasten to make an admission, for the simple sake of truth. A number of these "interesting" trees and shrubs *are* on the borderline of hardiness, and that is one reason why the average nurseryman does not stock them in quantity. A few of these plants are perfectly hardy but not well known. Our native thimbleberry, for example, called boulder raspberry (*Rubus deliciosus*) in Standardized Plant Names is mentioned in English catalogs rather than in Colorado ones.

Another admission: some of our very common native shrubs are hard to transplant from their native habitat because they are not accustomed to being transplanted. A lilac, on the other hand, has been transplanted for, say, two thousand years or more which is the time it has been in common usage as an ornamental shrub. Of course, that is what makes the difference.

Then there is the three-leaved sumac, (*Rhus trilobata*), generally known as skunkbush because of its odoriferous wood. It can stand much drought and abuse, once established, but transplants poorly unless it is nursery-grown. Difficult also are rock spirea (*Holodiscus dumosus*), mountain mockorange (*Jamesia americana*), pin cherry (*Prunus pensylvanica*), and particularly our beautiful kinnikinnick (*Arctostaphylos uva-ursi*), if taken from the barren mountain side. But all of them are highly desirable plants in their proper places.

On the other hand, some native shrubs are not at all difficult: a pink locust (*Robinia meo-mexicana*) sprout is almost sure to live, native sumac (*Rhus cismontana*) takes hold easily, and potentillas are not obstreperous. Most snowberries or coral berries (*Sym-*

phoricarpus) transplant well, whether native or not, as do most *Ribes* species (currants and gooseberries). We should use more of all.

We should mention buffaloberry, native mountainash, native birch and alder, and many others as most desirable shrubs.

And some day, I am sure, a clever grower is going to succeed in transplanting our native scrub oak—possibly with the aid of artificial inoculation of mycorrhizas* (a brazen assumption!). I admit 100% failure in my attempt, in spite of trying very hard!

But after all, many inventions are based on the ominous failures of others. In the meantime, it is just as well to be forewarned of the likelihood that you will probably not be able to transplant into your garden wild scrub oak. Sorry!

So much more could be said about the use of our native shrubs in landscaping. So much more should be said! After all, here are plants that have stood our peculiar climate for centuries, even thousands of years. They have learned to "take it." Why not take advantage of their hardiness? After a few years in the nursery row, they get used to being transplanted. Some may have to be planted in containers.

We should select the best and prettiest kinds, for once the home owner knows he can buy them he will use them. In the meantime, the adventurous grower may have to be satisfied with a small profit for some time until people get used to these native plants. Landscape architects and botanical gardens can do much to help in making them more popular.

Let me then, as a conclusion to this portion of the article on interesting shrubs, mention a few that have been overlooked. Squawapple (*Peraphyllum ramosissimum*) grows on the Western Slope; it has attractive fragrant apple-blossoms and later, little nicely-colored apples that look beautiful on the bush

but taste horrible. False mockorange (*Fendlera rupicola*) with white to pinkish, fragrant four-petaled flowers and narrow opposite leaves grows in similar locations. Antelope brush (*Purshia tridentata*) may be used some day as a neat low shrub, with abundant yellow-white aromatic blossoms in early spring.

Dwarf native ninebark (*Physocarpus monogynus*) and New Jersey tea (*Ceanothus fendleri*) may some day be planted among the low shrubs that now have their heyday in landscape planting. Less common are Fendler's barberry (*Berberis fendleri*) with glorious fall color and fernbush (*Chamaebatiaria millefolium*) with beautiful foliage and good white flowers. We could continue with sandcherry (*Prunus besseyi*), cliffrose (*Cowania mexicana*), ground-seltree (*Bacharis*), and a number of our native roses, excellent for ground cover. They are all good in their place and some day will be recognized. From New Mexico, Arizona, and Texas we may be able to bring in bigtooth maple (*Acer grandidentatum*) with its gorgeous fall color

The question is, of course, to what extent can we breed a hardy strain of plants that normally belong in southern climes. A number of trees and shrubs come to mind. Some have already been here long enough to have "arrived," so to speak. A number of specimens of sweetshrub (*Calycanthus floridus*) well named for its fragrant wood, are now growing in Denver and seed from them is sure to do even better than the original shrubs. Every winter we are struck by the brilliant fruit of firethorn (*Pyra-cantha coccinea*) in this region, even though it is particularly happy in such places as Tucson, and Phoenix. Horticulture House in Denver boasts a thriving clump of jasmine (*Jasminum nudiflorum*) that produces flowers as early as February or March and does not seem to kill back much. Another uncertain quantity that has managed

in a number of places is chastetree (*Vitex agnuscastus*) with showy lilac flower spikes at the end of its branches in mid-summer, and with very dark green divided leaves, grey on the under side. It is a tall shrub with a spicy odor, that may kill back some but survives once established. Particularly good for this climate is its habit of leafing quite late in spring. (No, I don't know what is particularly chaste about it.) A plant of about the same size and color of flowers and one that does not kill back to the roots in winter is fountain butterflybush (*Buddleia alternifolia*). The name indicates its wide-spreading arching branches; it is richly scented.

Smoketree looks from a distance as if it were topped by a feathery, smoky cloud, interesting for that reason. Both the American smoketree (also called chittamwood, *Cotinus americanus*) and the European kind (*Cotinus coggygia*) are almost hardy here. Both have simple roundish leaves, that can be twisted at will and that turn a good fall color in favorable seasons.

By this time, the rose-of-sharon (*Hibiscus syriacus*) is considered hardy except when shipped in from the south. Its blossoms, like small roses, come in white and purplish-blue colors. It is particularly popular because it blooms in late summer and fall. Be sure to give it well-drained soil.

Just about as well known is the goldenraintree (*Koelreuteria paniculata*) from eastern Asia, a small tree with masses of small gold-yellow flowers in July, followed by interesting three-sided lanterns that hang on all through the winter. Leaves are compound divided and quite good-looking. It belongs to the soapberry family.

The soapberry (*Sapindus drummondii*) is really a Colorado native, if you include Baca county, which partakes of both Oklahoma and Texas in plant growth. It is a good sized tree that thrives in dry regions; has leaves

similar to an ash and has whitish flower clusters followed by glassy yellowish berries which are sometimes used as soap.

In this list of woody plants that normally grow farther south than Colorado, we should mention tuliptree (*Liriodendron tulipifera*) with its striking flowers and sourwood (*Oxydendrum arboreum*) with gorgeous fall color. Both are of doubtful hardiness but have been grown.

That brings up the question: "why should one person have success growing tuliptrees and sourwoods, and somebody else have failure?" Is it just a question of having a "green thumb" or lack of one? The simple explanation of a green thumb is, of course, that one person knows certain things about growing plants that another may be ignorant of.

One of these things is the proper location of a "doubtful" tree or shrub. Some people might jump to the conclusion that a plant that is used to a southern climate should, therefore, be planted in a nice warm spot, say next to the south wall. It would be the wrong kind of a jump. The fact is, that such a spot would be apt to suffer a great variety of temperatures in the changing from day to night and from summer to winter. A northeastern exposure would be much safer.

Half-hardy plants should be given as even a temperature as possible. Snow in winter acts as a protection, shade in summer prevents the bark of such a tree or shrub from being sunburned by our intense sun. The very best location for a half-hardy plant, then, is along an east wall or even a north wall—in general—at the northeast corner of a building. Whatever protection is given in winter should not interfere with a plant's circulation. Protection is mainly to shield the plant (roots as well as bark) from sudden changes in temperature. Coddling does not help a child to

grow up, nor a tree or shrub to become acclimated. Both must "learn" from "experience."

Up to this point we have talked mostly about plants that have come from a more southern latitude. The treatment for plants that are used to climates such as New England, Michigan, or Oregon, is rather similar; they also need protection from hot scalding sun and they need to be kept dormant as long as possible in spring. Again, a northeast exposure provides both requirements.

With this type of plant, however, another factor becomes important—the soil factor. To be more specific, these plants from regions of high rainfall and snowfall are used to an acid soil and are quite unhappy in alkaline soil. If, in addition, they cannot stand the dry atmosphere around their branches, they'll do badly or not at all in our climate with its low humidity and alkaline soil.

More than likely, it is for these two reasons that we have had such very poor luck with flowering dogwood, and almost all broadleaved evergreens such as rhododendron, holly, boxwood, and kalmia. The only hope is that some nursery or botanical garden will "breed up" a clone of one of these plants that can accommodate itself to a non-acid soil and a dry atmosphere. That may take a long time but it is not necessarily impossible. (What is to the insistent plant breeder? We have already succeeded in growing hydrangea, weigela, yellowwood, magnolia, larch, and *Laburnum* (goldenchain tree). Japanese pagodatree (*Sophora*) has flourished for many decades in our Denver parks (both City Park and Sunken Garden). Hickories (*Carya species*) are at home on some of our schoolgrounds, as is the pink-flowering horsechestnut. Hornbeam (*Carpinus*) and witchhazel (*Hamelis*) should have little difficulty.

Among shrubs, pearlbush (*Exo-*

chorda) and jetbead (*Rhodotypos*) have established themselves in a number of spots, as have fringetree (*Chioanthus*) and St. Johnswort (*Hypericum*).

Ever so often we find a new redbud specimen (*Cercis canadensis*) drawing the admiration of garden lovers. In Boulder it seems to be quite at home but in Denver it disappears when a severe winter puts it to the test. The same thing seems to happen to the flowering peach.

On the other hand, maidenhair trees (more commonly known as Ginkgo) insist on keeping alive under handicaps.

Where do we stop in a discussion of this kind? As we think of one semi-hardy tree or shrub, another one pops into our mind; perhaps one that we have seen in some garden where it "had no business being." We have seen rhododendron, even boxwood, yes, and blueberry. Did they survive? Are they indicative of what we may expect in the next fifty years?

As Colorado grows and attracts people from other states and from many other nations, these newcomers are sure to bring in some of their favorites. And some of those favorites are going to grow and propagate their kind. Now we are not afraid to try even those trees, shrubs, and flowers that we have been assured can not grow here. How often we surprise ourselves—and the experts.

Isn't that, after all, the ever-recurrent miracle about growing things—their unwillingness to be placed in hard-and-fast compartments, their unbounded multiplicity and capacity for growth under adverse conditions?

Miracles are not things of the past, but are part of the everyday life about us. We can do our part in performing miracles just by giving nature a chance.

*A fungus living on roots of higher plants for the mutual benefit of plant and fungus. A relationship not completely understood as yet.

DIVISION OF PERENNIAL PLANTS

By MAUD McCORMICK

Some perennials are perpetual and should be carefully placed in a location from which they need not be moved. Peonies are stay-at-homes that bloom happily year after year in a favorable spot in the garden. Bleedinghearts and gas plants are beautiful clumps after a decade of growth. Platycodons prefer to remain undisturbed, as do lupines and other tap-rooted plants. Many others, like hemerocallis, phlox, and Oriental poppies, require only infrequent division.

Many of our best perennials, however, profit from being divided and replanted in fresh fertile soil every few years. Some require it. Clumps of chrysanthemums produce less bloom and usually produce it later in the season than do the small divisions picked from an old rootstalk and planted in May. Old clumps of bearded iris knot up the soil, show no growth in the center of the clump, and bloom less and less as the years pass. Most other plants endure longer without division than bearded iris and chrysanthemums, but division improves overgrown clumps of most fibrous-rooted plants like hardy asters, veronicas, shasta daisies, campanulas, and many, many others.

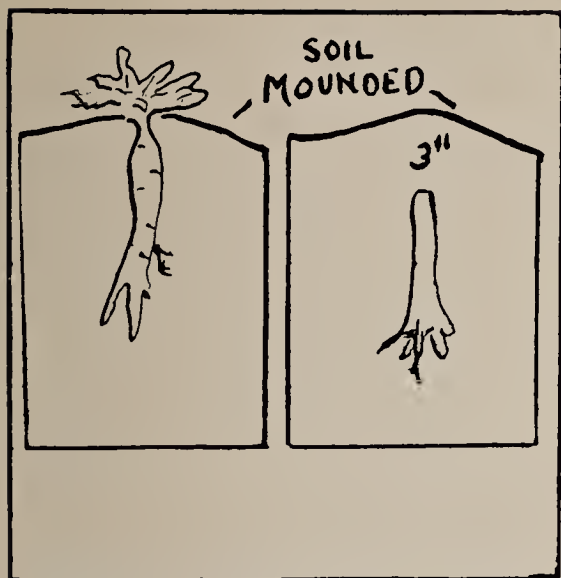
Generally speaking, in our climate it is well to do as much of such work as possible in the spring when we usually have more natural moisture and plants are eager to sink their roots in the earth and start growth as fast as they can. Much, however, must be done in the summer and fall. The large iris respond best to summer division and replanting soon after the end of the blooming season though everyone knows that they may be moved successfully at any time the ground is not frozen. The earlier division gives them time to make strong growth before winter comes and thus to give better bloom

the following spring. I like best to finish bearded iris replanting in July.

The procedure is simple. After digging the clump, throw away the old bloom stalks and exhausted rhizomes that knot up the center. Select the healthy young rhizomes with stout fans and strong roots. Prune the fans to a third their length and trim off straggly roots as well. Reset in groups of three or five in well prepared, fertile soil, preferably in the dryer, sunnier spots in the garden. Iris prefer shallow planting, with only an inch of soil over the rhizome. Unless the variety is an unusually cantankerous one, you should have good bloom in the spring and for two more years before another division is imperative.

Other iris varieties, notably *Siberian*, *ochroleuca* and *pseudacorus*, require much less frequent division and may be separated in the early spring and handled as most other fibrous-rooted perennials. They may, of course, be divided after blooming as are the large bearded iris mentioned above.

Oriental poppies, for really good results, are more exacting in their demands than are the iris. They must be dealt with in their dormant period in August and before new growth starts in September. Fortunately, they require division less frequently, but if centers of the clump show sparse growth and the blooms sprawl instead of remaining upright, the plant should be dug, the old centers discarded, and divisions with one or more growth buds or "eyes" replanted, the "eyes" being covered with no more than three inches of earth. As small roots remain in the soil after a poppy is dug and as those roots usually produce new plants, it is most unwise to replant another variety in the place from which one kind has been removed. The sturdier variety will



Plant toproot of poppy 3 inches deep unless growth has started, left.

eventually choke out the other, but even before that happens, there may be orange and salmon blooms simultaneously to sear the sight.

Peonies are the last perennials to be divided in the fall. Here they may be dealt with in September or at tulip-planting time in October. Fortunately, they rarely require the effort as they are difficult to dig and divide. See that your tools are very sharp when you attack a huge old peony and that you have full water pressure when you hose the soil from its intricate roots. Trimming the roots and cutting the plant into sections of three healthy growth buds or more you can best do with a



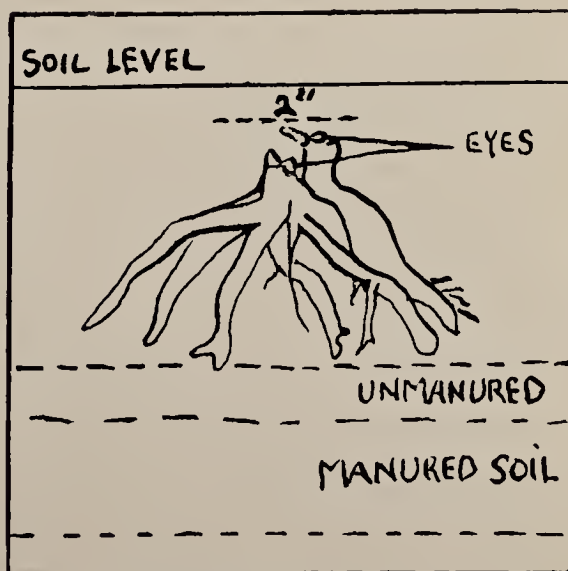
Trim peony divisions to three healthy buds.

very sharp knife. Prepare a hole by removing a two-foot cube of soil, refilling it half-way with good, well-rotted manure, and the rest with rich, well-composted topsoil in which the peony is set with its eyes just below the surface. With a mound of earth over it for protection in its first winter, the friable soil will sink and become compact and the growth buds will be at about the two-inch planting depth by spring. More peonies fail to bloom because of being planted too deeply than from any other cause, I suspect, and such interment is to be avoided at all costs.

When bleedinghearts must be divided, the same time and procedure as



Dig, wash off, and then divide peony roots with sharp knife.



Cover peony growth buds with two inches of good friable soil.

that for the peonies is followed. Day-lilies and phlox, often divided in autumn in other climates, are better off here if left undisturbed until spring, a time of multiplicity of garden tasks which can become overwhelming, even though our enthusiasm is then at its peak. Prime necessities for the work are a sharp spade, a strong and skillful wielder of it, and patience and care in pulling apart the clump.

Things to consider in dividing perennials:

- I. *Size of plants:* When iris knot up the soil, Oriental poppies and other large plants develop bare centers, and hemerocallis and daisies grow too large for their place in the border, they should be dug up and divided.
- II. *Time for divisions:* Soon after the blooming season for bearded iris, August dormancy for Oriental poppies, September or October for bleedinghearts and peonies, and early spring for most other plants.
- III. *Necessary tools:* Sharp knife, trowel, spading fork and spade. The emphasis is on the sharpness, especially for use on old clumps of peonies. Shears, too, are

needed for trimming roots and iris fans.

IV. *Procedures:* Dig plant, wash dirt off roots, tear or cut into sections, discarding hard, woody centers and replanting the vigorous new growth. Cut fleshy rooted plants into parts having three to five "eyes" or growth buds. Dust cuts and bruises with sulfur or other fungicide as protection against disease.

V. *Replantings:* Prepare a planting hole large enough for the mature plant, not for the small section you are starting. Water in thoroughly to compact the fertile, friable soil you are using. Then mound the earth above peonies, for protection their first winter.

VI. *Waterings:* Keep the young plants moist until they have had time to establish themselves. This means that fall plantings should be wet, not dry, when the ground freezes and that spring divisions should not suffer setbacks from scanty sprinklings.



DID YOU KNOW?

Did you know that larch when burned disturbs snakes? Sundry Romans built their bridges of this timber because they regarded it as almost fire-proof. A ship of larch that had been floated after sinking in twelve fathoms of water was declared to be absolutely indestructible by fire, so hard had the sea made it. To the French, this tree the *Pinus larix*, yields a manna that would appear to be little different from the gum that keeps so many American jaws wagging for it is chewed by mountaineers in order to "fasten their teeth." This gum was also used by witches, along with the blood of basilisks, the skin of vipers, the feathers of the phoenix, the scales of salamanders, and other commodities that were commoner once than they are today, in the dreadful stews which were boiled at midnight as a preliminary to cursing the neighborhood.—From *Myths and Legends of Flowers, Trees, Fruits and Plants*, Charles Skinner.

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MORE FORESTS FOR THE FUTURE

By DONALD E. CLARK

Mr. Fred Johnson's thoughtful article on *Memorial Forests for Posterity* in the January issue of *The Green Thumb* seems well worth more consideration, and some supplementing.

One of the most important ways in which the tree planting programs have been affected by drought has been in the poor rate of survival of planted trees, especially in the drier states. As we have many of these relatively dry areas in Colorado (in spite of the last two months of rain!), we have not reactivated and enlarged our tree planting programs as have other sections of the country. We do not feel, however, that the time, during this period, has all been lost. Work is being done on studies aimed at reducing costs of regeneration and increasing success ratios. Recent developments from basic research have opened several encouraging avenues. For example, there is promise for more success by use of direct seeding on certain sites, with greater total efficiency. Also, where nursery stock will still be needed, there are definite possibilities of decreasing appreciably the time needed to grow nursery stock of suitable quality and size. This would result in lowered costs, of course.

A relatively new aspect of our national forest planting program, especially in Colorado, is that of using certain shrubs and hardwoods, rather than concentrating all our efforts on conifers. Production at Monument Nursery is being adjusted to care for this change. The shrub and hardwood planting program is designed especially for watershed, game range, fish stream, and livestock range rehabilitation and improvement in critical areas. The President's budget for next year includes an increase of \$150,000 for the purpose of expanding such planting. Also included is \$4,000,000 for assist-

ance in tree planting in the Conservation Reserve and on natural forest types under the Soil Bank program. Further, the budget proposes increases of \$300,000 to set up national forest planting and another \$300,000 for assistance to states on co-operative Clarke-McNary planting. All this, of course, is not too much in relation to needs.

The recent survey and review of the nation's forest land and timber resources, made by the Forest Service with the assistance of timber industries, state foresters, and others, show some 60 million acres of commercial and non-commercial forest land which should be planted, as well as 50 thousand acres which should be in windbreaks and shelterbelts. There is a big job ahead. The interest of various groups such as the Colorado Forestry and Horticulture Association, and the demonstration plantings by groups mentioned by Mr. Johnson, are helping to point out the needs and are showing what can be done. To furnish the necessary seeds and plants will challenge the best efforts of private, commercial, and public nurserymen throughout the country.

The author in the January issue accurately described the downward adjustments in sheep and cattle grazed on Colorado's national forests since 1924. One additional factor in this trend, closely related to economics, is the change in the livestock industry itself. "Range cattle" of older days have been replaced by higher type, more valuable animals. This has served to bring into sharper focus the need for both pasture management and more careful range practices. Another significant factor infrequently mentioned, is that hundreds of thousands of acres of temporary and poor grazing areas created by early-day wildfires have

reverted, under organized fire protection, to forest cover. Such lands are more naturally adapted for timber growing and watershed protection than for any other use.

Certainly much more could be written on the need and value of tree plant-

ing on both private and public forest lands in Colorado, and on the many advantages which accrue from well-planned windbreaks, and livestock, and game shelters. Without belaboring the point, I can recommend the planting program as one well worth all our efforts.

IT'S AN ANCIENT VANITY

The Greeks learned it from the Egyptians and then passed it on to the Romans — the custom of strewing rooms with roses, decorating wine cups and banquet tables with flowers, scenting their wine with spices, and making their homes fragrant with perfumes concocted from flowers.

Originally the practice probably began with religious worship, but it was also an attempt at sanitation for it was believed that scents and spices purified the air, maintained health, and kept away evil spirits.

Theophrastus, the father of botany, wrote a book on scents which included how to make rose perfume. Aristotle hinted at the distillation of roses which the Arabs and Persians later perfected. In the Bible, the Old Testament mentions "oil of myrrh, sweet odours and other things." Among the many items traded by Solomon were perfumes and cosmetics, and the Greeks were a bottomless outlet for the spices and perfumes of the East. Greek literature reveals that the spice, flower, and perfume business flourished in Athens, Cos, Corinth, Cypress, and Ephesus. Alexandria eventually became the most famous center for such trade and in connection with this, the two most famous names in perfume at that time (comparable to Lanvin and Guerlain today) were Peron (an ancestor of?) and Megalus. The perfume Megaleon was compounded of burnt resin, cassia, cinnamon, myrrh, and oil of belanos. Then there was Melenum which consisted of blossoms of quince and sweet marjoram, an essence made famous in Cos. The city of Rhodes used crocusses, and the City State of Corinth distilled iris water from dried iris rhizomes. Today powdered orris root (from an iris rhizome) is used as a perfume fixative in sachets, potpourris, and pomander balls. Pliny says that 37 ingredients entered into the making of perfume for the King of the Parthians.

"Vanity thy name is woman?"



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I YEARN FOR PRIVACY!

BY A VICTIM OF SOCIABILITY

EDITOR'S NOTE: *This pathetic wail is absolutely authentic. We print it as proof of the absolute necessity for privacy in our modern garden, as experienced by the great majority of garden lovers. Some suggestions in this number of The Green Thumb may be found to be helpful. This is what the "victim of sociability" reports.*

Six times in the last two days I took work outside on our patio so as to enjoy the sun and accomplish something at the same time. There was always a deadline to meet: a letter to get to my son by Sunday, finishing my daughter's dress, much neglected reading.

As the top of our redwood fence is even with the porch floor of our neighbor's home, and there is nothing to hide the view on the other side, the quietest closing of the door and tiptoeing out to my chair didn't help. I was soon joined in my reading by: "Now that I see you outside, wouldn't you like some of the iris I'm about to divide?"

I badly want and need the iris, so the letter-writing is put aside. An hour and a half later I've finished the "garden tour" and chat; I have a bunch of iris I won't have time to plant for a week, and the mailman has gone. Now my son won't get his letter until Monday,—too late for instructions for Sunday!!!

I have a friendly chat and cigarette with another neighbor, but poor Nancy, my daughter, is rushed into her old dress at the last minute because I didn't get the hem finished in the new one.

With four children there is seldom free time for just sitting. But I have to take to the house or not venture forth at all now, if there is something pressing to be done,—always there is!

Or, I'm working like a house afire, standing on my head to pull weeds, etc.

Eventually I look up to see that I am the main "view" of the guests next door who are out to admire my neighbor's mountain view. That is always the day I forgot to comb my hair or put on lipstick. Then, as they come out into the garden next door, I'm either introduced to all, much to my embarrassment, or I have to hide by the incinerator until they have gotten well into their garden and out of reach.

In our outdoor entertaining we prefer to keep out of sight of our two neighbors who may, or may not, be interested. We are fond of other families with four children,—usually have two other families, making 18 people in toto for sit-down dinners several times during the summer. Son has about 18 or 20 guests for hamburger parties and dancing.

So we need a barbecue for outdoor cooking, and a permanent sitting space without having to haul out twenty chairs each time. A sitting wall with cushions may help. The steps now take care of about ten little ones as they are shallow enough for short legs.

This summer's crop of mosquitoes has been crossed with horses, so after dark the patio "as is" is not suitable for night entertaining or relaxing.

I need privacy!!!!

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OUR NATIVE FLORA

By R. L. WOERNER, DIRECTOR

As a newcomer to Colorado, I have been impressed by the trees, shrubs, and herbaceous plants which are native to this state. Dr. H. D. Harrington in his "Manual of the Plants of Colorado" (1954) lists over 3,000 species and varieties, while Dr. William A. Weber, author of "Handbook of Plants of the Colorado Front Range" (1953), includes 1400 kinds of plants on the east side of the Continental Divide in the limited area from Colorado Springs to Fort Collins—within easy reach of Denver! This state, with its varying elevations, growing seasons, and precipitation rates has a wealth of plant material to be enjoyed, studied, and developed.

I like to divide these "natives" into four groups when considering their part in the development of our botanic gardens—the commonly cultivated species which also occur in the wild; the native plants which have known ornamental value, but which are not available commercially; a number of wildflowers and many woody plants which have an untested potential in ornamental horticulture; and lastly a miscellaneous group of those plants which should be investigated for reasons other than their use as garden subjects.

The first of these groups, the common ornamentals, includes some "old friends" whom I have seen throughout the country in many a park and garden. The spruce of our foothills and canyons is the foremost of these, since it carries the state name wherever *Picea pungens* is translated to the standard common

name of Colorado spruce. Douglasfir, pinyon pine, redosier dogwood, common hackberry, shrubby cinquefoil, and others have been listed in nursery catalogues for years. These evergreens, trees, and shrubs will be displayed in our arboretum unit, since they are among the desirable plants for the Colorado area. They will take their places with many related introduced species as well as a large number of other ornamental plants that will grow in this climate to fulfill the aim of the botanic garden to grow all of the "best" varieties.

The second group would include those plants which have been recommended or tried as ornamentals by D. M. Andrews, George Kelly, and others. *Forestiera* (mountainprivet), mountainmahogany, thimbleberry, Apache-plume, and rabbitbrush are representative of this section of our natives which are not generally available to the public. I am pleased to say that I have had the opportunity to include many of these in my circle of "new friends" and find their possibilities exciting. The responsibility of the botanic gardens will be to grow these plants for display and observation. Although some of these plants may not be classed among the best ornamentals for Denver, they prove to have great value in other places within the influence of our botanic gardens. This particularly applies to the high altitude towns where frost-free days are few and to those areas where arid climate or high alkalinity are handicaps to plant culture.

There are reasons why this second group of plants is not in the trade, and it is our responsibility to offset the drawbacks to wider use of these desirable species. The law of supply and demand controls the nursery business as it does all types of trade. Through our botanical displays and programs, we can popularize these plants and increase public interest and demand. There are attendant problems of propagation and production which may be solved through a research program initiated by the botanic gardens.

The third division in which I place our native materials would include the majority of the remaining woody plants and many of our herbaceous plants and wildflowers. Among these are undoubtedly many subjects worthy of garden use to be discovered, displayed, and introduced. The botanic gardens will provide the necessary organization to carry out the required collection, growing, and testing of these yet untried species and varieties. Here, too, is the place where plant breeding may become an important function. Some of the native plants may serve as a parent for crosses with ornamentals foreign to the state. Hybrids resulting from such breeding work may show greater adaptability to the Rocky Mountain region than the introduced parent. Certainly, this is a fertile field for investigation.

The last or miscellaneous group of plants would include those which have no ornamental value—in fact, they may even be noxious weeds. These are to be investigated for economic reasons and for the education of the public. They would include the weeds, the poisonous plants, and the trees, shrubs, and herbs which have no garden value. Labeled displays will be of value in the identification of these plants and will be a great aid to a fuller enjoyment of the out-of-doors.

There may be additional areas for research in this last group, for many

plants may yield untapped resources in the form of plant products—flower seeds, juices, or other derivatives. Some have been mentioned as sources of latex, others may have medicinal value, if methods can be utilized to develop their latent possibilities.

I am looking forward to making friends with all of the Rocky Mountain plants I have yet to meet. I am sure the native flora will be one of the most interesting phases of the development program in the botanic gardens. We have begun a planting of streamside and canyon species in our box canyon at City Park. Other ecological groupings will be developed, for we can learn much by observing the associations to which these growing things belong. Our natives will be the reason for our development of garden units at different altitudes, for here we can best observe their ecology, complete with the animals, birds, and insects that complete the community. The native trees, shrubs, and flowers will be exhibited in all their natural beauty in their native habitats, for the only change we will make will be to add access trails and labels for identification. The Denver Botanic Gardens will do their part to help the people of the Rocky Mountains know their native plants and use them to the fullest.



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THE GARDEN FAIR

By MRS. ED HONNEN

May 3 12:00 p.m. to 9:00 p.m.

May 4 9:00 a.m. to 6:00 p.m.

May 5 9:00 a.m. to 6:00 p.m.

Auction 1:30 p.m. on

The inspiration for this first Garden Fair came from a young woman in Pasadena, California who happens to be the daughter of Mrs. George Garrey. California always brags about being the first in everything so it was the committee's plan to make this the first Garden Fair to be held in Colorado for the benefit of the Colorado Forestry and Horticulture Association.

Through the generosity of Ted Gutschall of the Colorado Tent and Awning Company we were lent four tents—one 60x40, two 30x20 and one 20x40. These were placed in a rectangular design, each opening in to a center area. The space between each tent was spanned on two sides by sample fences provided by Bill Carlile of the Elcar Fence Company. One other span was

closed by the Colorado Toro trailer which was open to the public for inspecting the excellent machinery on display by Mr. Jack Loughran. The opposite span was filled by an outdoor patio designed and executed by the Rocky Mountain Association of Landscape architects under Mr. Gerald Kessler, its president.

These tents were placed in this geometrical design adjacent to the Cherry Creek Shopping center on property owned by Buell and Company who generously gave us the use of the 150x120 foot area. This was leveled off and spread with two inches of sand by McCoy Company Caterpillar.

The entrance tent opened on to First Avenue with Detroit Street bordering on the west.

In the entrance tent was a table 6 feet long facing the door, behind which sat the ticket takers. The entrance fee was 25 cents which was a very wise



Mrs. Ed Honnen, chairman of our Garden Fair, takes a few moments of well earned rest in the Landscape architects display.

arrangement, netting over \$900 for the three days.

Behind the table was another table you couldn't miss with subscriptions for The Green Thumb for sale, also tickets for the Garden Tours, taking place later in June. On the left was a large display for sale of drift wood and weathered wood pieces from the high mountains, arranged and sold by Mr. Chester Hall of 173 South Pennsylvania.

On the right, opposite the drift wood, were three commercial displays—one by Barteldes Seed Company with garden furniture and barbecue equipment for outdoor living, one display by the Western Seed Company featuring Ortho, a chemical spray, and one by an individual company with folding tables with two benches for each table in cases to take on picnics. Two of these displays occupied rental space at the rate of 50 cents a square foot.

Facing the expectant customer as he or she left the tent to explore the other tents, was a huge arrangement of over 200 geranium plants 30x20 feet terraced up to a bird bath (generously lent by the Denver Terra Cotta Company.)

Fuchsias, ivy, and miniature border plants of chrysanthemums filled in the spaces and the whole arrangement was edged with dwarf marigolds. A fabulous arrangement executed by Mr. Bill Gunesch and bought on consignment from the Park Floral Company, this display made our show glamorous and could be seen by approaching Fairgoers from down on First Avenue.

At the entrance to each tent on each side was a terra cotta urn filled with greens. The west tent was devoted entirely to commercial exhibits. Carson Brothers Machinery Company showed their beautifully useful power mowers in every size and for every use. Mrs. Folkner of the South Denver Evergreen Nursery showed plant material and plant food. Mr. Mankoff, owner and

manufacturer of a Denver product, a chemical spray called Manco, showed how to use this product. Roxy Vendena had a display of Permagreen and The Denver Dry Goods had a display of garden hand tools, interesting to every woman who likes to be a do-it-yourself gardener.

Opposite this tent was a tent devoted to a white elephant table which netted us over \$400 and a potted plant booth which was a very busy place, mostly because the donors had failed to label their plants. The booth was most successful but must be larger next year and the plants definitely labeled. It was fun to see the gals scrambling around and they did a grand job.

Clyde Learned was in charge of the flats and miscellaneous potted plants to the left of this tent as you walked into the center area. He was busy behind a long yellow table making "deals"—prices no one could resist.

The large tent contained at one end the fabulous artificial fruit, the idea of which came from California and which was assembled and arranged by the fruit committee which I have named. This was the "piece de resistance" of our Garden Fair and netted us over \$2000.

Opposite this at the other end of the tent was our cultural booth from the Art Museum. Lovely prints, beautiful ceramics, small toys and books on herbs, flowers, trees along with hanging baskets of house plants for a patio made a truly handsome booth.

On the south wall Judy King sold her personally designed arrangements of dried material in beautiful colors. Bob More arranged a display of evergreen specimens entitled "Learn to Identify Your Evergreens." On the north wall were two large booths of aprons, wood carriers, flower arranging kits, dried novelties, plaques, and place cards, bird feeders, painted pots, garden torches, garden stakes (special iron



A view of the center area showing the large floral display by Bill Gunesch

ones), everlasting which proved very popular.

In the middle of this tent, Mr. Gundell placed his famous display of grasses and trees which will and will not grow in Colorado and by the other tent pole was a wrought iron tree ring seat lent by Barteldes Seed Company which provided a place to sit and rest and peruse the many catalogues available.

Also in this tent dividing the sales booths were arrangements of garden furniture by the following firms. The Denver Dry Goods wrought iron display, the Tropic Shop, Reed Contemporary design pieces, Bethune & Moore Contemporary patio furniture around a lovely bronze figure by Marion Buchan, Sears Roebuck's display of an ensemble of wrought iron with live plants in the background, Green Bowers Nursery redwood tables and benches suitable for patio or garden, a well balanced display of most of the types of furniture so much in demand these days.

Around the edges of the middle outdoor area was nursery stock all of which was donated by the following nurseries:

Cottonwood Garden Shop
W. W. Wilmore Nursery
Rocky Mountain Nursery
South Denver Evergreen Nursery
Tower Nursery
Wheat Ridge Nursery
McCoy & Jensen Nursery
Amidon's Cash Nursery
Alameda Nursery
Marshall Nursery
Associated Nursery
Robert's Nursery
Green Bowers Nursery
Northern Nursery

This Fair was the "larger view" of a plant auction which has been held for years before to benefit the Colorado Forestry and Horticulture Association.

Without the following large list of generous donors to our Fair we could not have been as successful as we were:

White & White Public Relations
General Outdoor Advertising
Lemoine Bechtold Appliances
Mr. Bill Greim
Miss Amy Roosevelt—Allegro Music Shop
Mrs. Robinson

Mr. Bill Krouk
 Mr. Lee Ashley
 Mrs. John Oder
 Mr. Dick Braun
 Mr. and Mrs. Norman Handell
 Sturgeon Electric
 Public Service Co. of Colorado

The finances were ably handled by Mrs. H. M. Kingery whose "office" was the cash register in the entrance tent. Later the contents of the cash register were turned over to the treasurer of the Colorado Forestry and Horticulture Association, Mr. Charles Fischer. The bills are being paid as they arrive and at the moment our profits have reached well over \$5000.

The important solution to our guard problem was Officer Bob Gale who was our night watchman and spent most of the nights cleaning, raking, dusting and saving the valuable objects from being blown down by sudden winds and rain. All this was done on his own—a most helpful and pleasing person and most cooperative. We have much to be grateful for, to him personally, and to Liz McLister for thinking of him.

To all the donors of this Fair, including the many sewing ladies who assisted Mrs. Guilford Jones and to her personally who so meticulously checked every seam; to all the wonderful friends of Horticulture House who gave of their time helping and advising and drawing and planning goes the success of this *fun* Garden Fair for all of Denver.

The Denver Post
 Rocky Mountain News
 Denver Art Museum
 Botanical Gardens of Denver Inc.
 Garden Club of Denver
 Cottage Florist
 Fortna Auctioneer
 Komac Paint Co.
 Mrs. C. L. Hubner
 Gaylen Broyles Advertising Agency
 Western Seed

Mrs. John Evans
 Harry Nix
 Mr. F. A. Adams
 Mr. Martin Bechtold
 Mrs. Mina Bilmeyer
 Mrs. Persis Hutton
 Mr. P. K. Alexander
 Mr. Dick Ullemeyer & Staff
 Mrs. Jack Barrows
 Miss Marcia Toll
 Lew Storey
 Troy Davis
 Mrs. L. D. Bromfield
 Mr. Jack Deboer
 Mr. Walter Pesman

To the press and society editors of Denver and the surrounding communities, to all the radio stations and TV stations, to the Garden Club of Denver for Litterbug bags, to the Perennial Garden Club for helping man the booths, and to the Junior League of Denver for their help and the Crestmoor Park Garden Club for the table cloths they sewed, goes the success of this Fair. To the City and County of Denver for their cooperation with truck and water tank, to Earl Sinnamon for the clean up job go our heartfelt thanks.

Look and wait and expect to be invited to work for our next year's Garden Fair for Denver that will be bigger and better!

COMMITTEES:

Balloons and Hummingbird Feeders:
 Mrs. John Mackenzie, Mr. Martin
 Bechtold

Suet Bird Feeders: Mr. Phillip Alexander

Artificial Fruit Creations: Mrs. George Garrey, Mrs. Frank McLister, Mrs. Rulison Knox, Mrs. Alonzo Lilly, Mrs. P. D. Whitaker

Dried Arrangements: Mrs. Judith King

Dried Novelties: Mrs. John Newman

Publicity: Mrs. Henry McLister, Mrs. Hugh M. Kingery, Mrs. Wayne Stacey

Radio & TV: Mr. Pat Gallavan

Music: Mrs. James J. Waring
 Staging: Mr. Robert Woerner

Nursery Stock: Mr. Scott Wilmore
 Potted Plants: Mr. C. E. Learned

STATEMENT OF 1957 GARDEN FAIR, JUNE 19, 1957

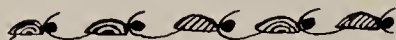
<i>Income</i>	
Bank Deposits	
May 7	\$ 852.65
May 7	3,977.00
May 31	331.00
June 21	2,404.75
To Petty Cash May 6	19.40
Fair Expense Reserve Account	124.76
Accounts Receivable	182.00

	\$7,872.06
<i>Expenses</i>	
Paid Bills	\$1,133.80

Net Profit	\$6,718.26



Out of the religious rite for Adonis (practised in Greece) grew the custom of planting flowers in pots. To celebrate his vernal resurrection (on the longest day of summer) baskets or pots were planted with quick sprouting seeds and when in flower they were placed around the statue of Adonis. This custom quickly spread over the Mediterranean area, in time lost its original meaning, and eventually was brought over to the new world for mediterranean type gardens in Florida and California. Today, with patios so popular, potted flowers are used everywhere but few know where the custom originated.



Greek philosophers commonly "held court" in groves of trees. In the grove or resort of Cynosarges, Athenians and foreigners were welcome to join the conversations conducted by Antithenes. The word "cynic" comes from the name of this grove.

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THE CONSERVATIONIST AND THE HUSBANDMAN

BY KENNETH K. McLEOD, CONSERVATION AID,
SOIL CONSERVATION SERVICE, RIVERTON, WYOMING

There once was a husbandman who possessed many acres that at one time were very productive but, which of late, no longer yielded profitable crops. He was grieved that his irrigation ditches had become gullies and that some land had become too wet to till and that large spots were crusted with alkali and other salts.

So he spoke of these things to his family, saying, "Surely there must be some way to overcome these things." And his son replied and said unto his father, "In the nearby city there lives a wise man known as a Conservationist. He is a member of the society of scribes and seers known among men as the Service of Soil Conservation. Perhaps he can tell us what to do."

The husbandman said to his son, "Come! Let us visit this man and lay our problems before him!" So they journeyed to the city and sought out the wise man. In his cubicle the man had many maps and tablets upon which were written the truths and prophecies of the Society.

And the husbandman told him of the problems which he encountered; how his land no longer produced good crops; of the wet places and the salty areas; and of the weeds that defied all efforts to kill them.

The Conservationist listened to their tale and then said unto his trusty henchman, "Go fetch my chariot forth-place upon it such implements as we may need." And the henchman said "Evenso," and fetched the chariot forth-with and placed upon it a transit, a level and rod, and a soil auger.

The Conservationist and the henchman traveled across the waste lands until they came to the farm of the husbandman. There they labored mightily for many days. The Conservationist supervised the work of other artisans whom the husbandman had employed to level the land and build drains and structures to control the water. And they spread a magic powder on the salty places, causing them to disappear.

The Conservationist showed him how to use the straw and the stubble of his crops and the excrement of his animals upon the land to improve its tilth. And he instructed him in the use of nitrogen, phosphate and potash. And the husbandman did all these things although he cried out in anguish at the expense.

But as the years passed by, he saw his crops increase many fold and his cattle wax fat and sleek. His buildings shone with new paint and his fences stood straight and taut. His wife and daughters were arrayed in the finest garments of wool and rayon and nylon. They made themselves beautiful with sundry cosmetics and were envied by all women.

The neighbors of the husbandman saw the miracle which had been wrought and said to each other, "Let us do likewise." They did so and the valley became one of the most fruitful in the nation. The Conservationist became greatly respected and his advice was sought by people far and wide. His words were as precious as uranium and he dwelt in peace and prosperity and his days were many.

Junior Green Thumb

MOUNTAIN NYMPHS

By MARJORIE L. SHEPHERD

Would you like to see flowers that fairies grow? It is not difficult but you must leave the car and walk a little for fairies hide their gardens away from the eyes of travelers who hurry over our mountain passes. Do you still want to go? Then come with us.

We will drive to Loveland Pass and as we near the top, look to the right. Do you see any flowers? Probably not, only rocks and grass and snow. This is where we will go when we have parked our cars at the top.

A trail leads us from the pass through the myriad blossoms of a meadow, but these are not the flowers of the fairies, so we go on up a slope and from the top we see a snow bank a little to the left. First we will look near the snow and there are flowers, yellow ones. A closer look tells us they are snow buttercups. Next is something tiny of a lovely magenta rose, we bend to look and there it is, a real fairy flower, a primrose.

On a higher, drier place we think we can see rocks covered with white li-



chens but no, we get close to find a patch of fragrant white phlox. There is that rose color again, a close mat of flowers with few leaves showing (moss campion) a fitting couch for a tired fairy. A little farther and we see what looks like a tiny patch of Colorado sky dropped to earth. These are our first forgetmenots, and for these, nothing will do but to kneel down and really enjoy their diminutive beauty and perfume.

Do you think this is all the fairies grow? We can see tiny parsley plants, pygmy breadroot for food, small clover for rabbits. Did you say how about shrubs and trees for landscaping? Oh yes, there are dryads for shrubs and small willows for trees.

And now do you believe there are fairies here? Who else could grow such tiny plans with so many blossoms?



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Seasonal Suggestions

Hot and dry July is a time for garden living. The savory aroma of hamburgers, steaks, and other charcoal broiled favorites fills the evening air as the male side of the family takes over in the culinary field. To break away from this theme is difficult but necessary for there are a few things that need attention in the garden this month.

Because so many of our gardening habits hinge on the weather, let's start with watering. If July follows the unusual pattern of the preceding months, watering may not be a problem. However, if July reverts to normal, watering becomes a necessity. Restrictions during the past few years have made watering a routine job and have proven that constant watering is unnecessary and wasteful. The easiest and fastest method to do this job properly is to water thoroughly and deeply a regularly spaced intervals. These intervals will vary from two to three days on sandy soils, to five to seven days on clay soils. Practically every lawn has problem areas (such as south slopes) that require special attention. Watch these areas and give them additional water when they need it. In addition to grass, we shouldn't forget trees and shrubs; they need to be watered quite deeply, but less frequently. The use of a root-watering device facilitates this.

Our unseasonable weather has, in addition to producing lush vegetation, produced a bumper crop of insects. If left unchecked, these pests can do considerable damage to plants. To guard against them make it a regular practice to check trees, shrubs, and flowers once or twice a week. Look first at the foliage, inspect it closely on both sides for signs of damage and for the presence of the actual insect. Then inspect the flower buds and stems in the same manner. Aphids and spider mites are the most notorious, mainly because they multiply rapidly, and can do considerable harm in a short period of time. Malathion is the standard remedy for them.

Grasshoppers are likely to be another serious problem this month. For these, chlordane, aldrin, or dieldrin are effective. July brings other insects too, but if you make it a practice to check your plants, you will be able to stay ahead of them. See the June 1956 issue of *The Green Thumb* for specific control of the major insects in this area, or call Horticulture House, TAbor 5-3410.

Faded blooms in the garden are almost as bad as cigar ashes on the living room rug. Picking them off (the blooms, that is) will do much for the appearance of your outdoor living area.

If you are planning a vacation this month, be sure to have a competent person take care of your yard. Getting behind on your yard work can bring regrets at the end of an otherwise pleasant vacation.

Remember that we are doubling up on the Garden Tours this month; that is, there will be two in July — on the 10th and 31st. Good hot weather gardens are hard to find so if you want some good ideas along this line don't miss these gardens!

The mountain streams should be back to normal by now so set aside a little time for fishing.

— Pat.

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The Green Thumb

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AUGUST, 1957

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The Green Thumb

Vol. 14

August, 1957

No. 7

Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."



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Editor Patrick J. Gallavan

FINAL LOOK AND LEARN GARDEN TOUR—AUGUST 21

The fourth and last Look and Learn Garden Tour of the season will be held Wednesday, August 21 between 10 a.m. and 5 p.m. in the Cherry Hills Heights, South University Boulevard, and East Quincy Avenue areas. Tickets are available at Horticulture House and at the gardens.

The preceding three tours were most successful judging from the many complimentary remarks overheard from visitors in the gardens, so if you liked the June and July tours, we're sure you'll enjoy this last one.

We hope visitors take advantage

of the unusual opportunity provided on these tours to ask the experts in each garden landscaping and gardening questions. The following gardens will be displayed:

Mr. and Mrs. A. B. Miller—3204 South Gregg Court (Cherry Hills Heights).

Mr. and Mrs. G. G. Brooder—3245 South Steele St. (Cherry Hills Heights).

Mrs. Leslie Chism—Sunset Drive, just west of University Blvd. and north of Cherry Hills Country Club.

Mr. and Mrs. William F. Lorton—5005 South University Blvd.

Mr. and Mrs. Edwin A. Francis—3200 East Quincy Avenue.

Dr. and Mrs. E. C. Wharfield—3691 South Cherry Lane.

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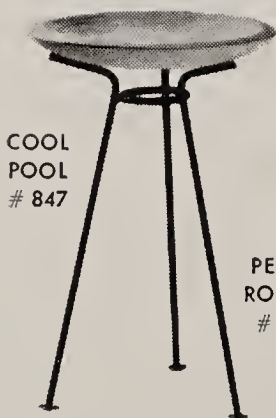
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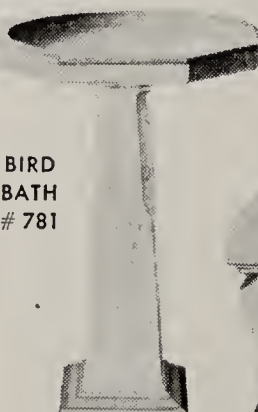
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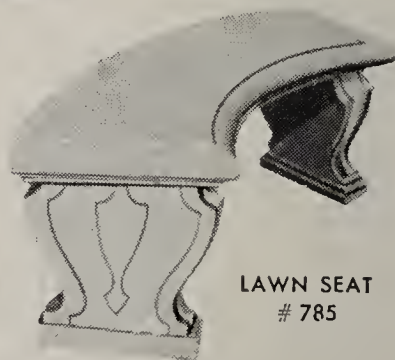
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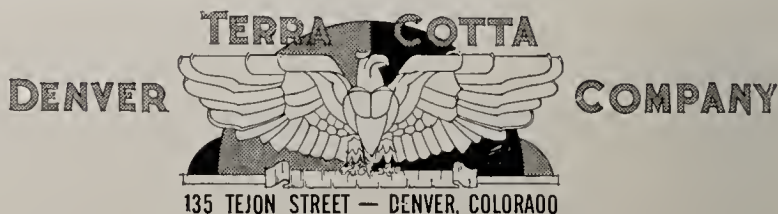


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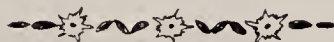


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Calendar of Events

Green Thumb radio program at 9:00 a.m. each Saturday on KLZ, 560 on your radio dial. Pat Gallavan, horticulturist with Dale Morgan.

Apologies are in order to Iliff Garden Nursery, Colorado Seed Company, Simpson Seed Company, and Rocky Mountain Seed Company for having left them off our list of Garden Fair contributors. This oversight was *not* due to any lack of appreciation on our part for your generous contributions!



AMERICAN HORTICUL-
TURAL CONGRESS TO
MEET IN DENVER,
OCTOBER 23-26

The American Horticultural Council will hold its 12th annual meeting at the Albany Hotel in Denver October 23-26. Pat Gallavan, chairman of this Congress, says that the program is being completed and will include a separate registration for local gardeners who might wish to attend some of the sessions. As soon as the speakers for the congress are confirmed, the complete program will be published. This meeting of nationally known horticultural figures should be a boost to gardening in the Rocky Mountain area, but we will need your support to make it a success.

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DR. A. A. HERMANN RECEIVES JOHNNY APPLESEED AWARD



Dr. A. A. Hermann of 131 Birch Street won the coveted and much sought after Johnny Appleseed award for 1957 at the Portland Convention of the Men's Garden Clubs of America.

This award is bestowed upon an outstanding gardener and horticulturist who has done some original horticultural work and who has emulated the deeds of all gardeners' patron saint, Jonathan Chapman, who because of his efforts to introduce fruit trees throughout the American frontier was affectionately known as Johnny Appleseed.

Dr. Hermann, a retired veterinarian, devotes his entire time to his garden and helping his friends, his church, orphanages and hospitals. From early spring to late fall he is most generous in supplying these or-

ganizations with large amounts of beautiful flowers.

His activities have included the testing of many kinds and varieties of garden flowers. Growers and hybridizers from all over the country are sending plants to him for testing in this dry climate. In this way he has introduced many new plants into the Denver area.

His leadership in the technique of preparing and using compost has been outstanding. He has used both the pit and pile methods and has developed different methods necessary for the successful application of compost in this unusually dry area.

When new methods of any type are first offered Dr. Hermann is always ready to give them an honest trial even though sometimes he has lost valuable plants on such experiments. Especially in the field of foliar feeding he has pioneered, and he has proven that this method of feeding, if correctly applied, is successful in this dry climate.

Dr. Hermann is a member and past-president of the Men's Garden Club of Denver and an active supporter of the Men's Garden Club Corporation of Colorado. Friends and garden lovers are always welcome to visit his beautiful garden at 131 Birch Street.

Dr. Hermann is also a very active member of our organization. He served as a member of our Board of Trustees from 1953 to 1956, and has opened his gardens to our Look and Learn Garden Visits on several occasions. The C.F.H.A. and its members congratulate Dr. Hermann on achieving this great honor, the Johnny Appleseed Award.



ARRANGEMENT OF THE MONTH

This gay floral design using a tree-shaped candelabra is easily made with fine foliage and just a few short-stemmed garden flowers. It is delightful for summer luncheons, bridal showers or as a conversation piece at any gathering.

Fasten small liqueur glasses with floral clay onto the candle holders, making certain they are well secured. Fill glasses with water and add miniature mixed bouquets of small flowers—pansies, floribunda roses, daisies, or any desirable flowers in harmony with your color scheme. Small sprigs of fern or bits of small-leaved ivy add depth and delicacy to the design.

If you have difficulty keeping the flowers in the glasses, tie the small bouquets together with fine wire or rubber band. Place within the glasses and add additional material as desired. A drop or two of food coloring

may be added to the water for an interesting effect. Small lace-paper doilies may also be attached to the candle-holders before placing flowers.

The nosegays can be made up as corsages and presented to your guests after the flowers have served their purpose as table decoration.

In winter the fresh flowers may be replaced with miniature bouquets of dainty artificial or preserved flowers.

Arrangement and description by JUDY KING.

Photograph by CHUCK MAJOR.



PARK AND RECREATION BOARD NAMED

On June 21, Governor Steve McNichols announced the make-up of the Colorado State Park and Recreation Board authorized by the 1957 General Assembly. They are:

Rudolph Gonzales, Denver	Harold Lathrop, Wheatridge
Wm. H. Yearsin, Jr., Burlington	David Abbott, Denver
Mrs. James Wagner, Fort Collins	Robert Venutti, Jr., Pagosa Springs
Dr. John Kehoe, Leadville	

The first four represent the four congressional districts, and the last three are members at large, as the new law provides.

The terms of Mr. Gonzales, Mrs. Wagner, and Mr. Venutti will expire on May 1, 1959; the terms of Dr. Kehoe and Mr. Lathrop on May 1, 1961; those of Messrs. Yearsin and Abbott on May 1, 1963. As these terms expire appointments will be for six year terms.

Mr. Lathrop is western director of the National Recreation Society and through his travels over the eleven western states is familiar with park and recreation developments. Mr. Abbott is assistant manager of the Denver Parks and Recreation Department. Mr. Venutti operates a dude ranch on the San Juan National Forest.



DID YOU KNOW?

Did you know that the house-leek, which is not a leek, and grows in old gardens and on old walls as readily as in houses, may have taken its name from a command of Charlemagne that it should be planted plentifully on the roofs of houses in his kingdom that it might protect them against "thunder?" This curious little plant, with its rosettes of leathery leaves, was anciently known under the names of Jupiter's beard—not in the least like anybody's beard—Jupiter's eye, ayegreen, and thunder flower. It cured fevers inflicted by witches; babes dosed with the juice of it were assured of long life; and if a person rubbed it over his fingers he could then handle hot iron—once. *From Myths and Legends of Flowers, Trees, Fruits, and Plants by Charles M. Skinner.*

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A COOL GARDEN IN SUMMER

By M. WALTER PESMAN



Do you “dig” a garden? As a teen-ager might say, “It’s real ‘cool’.” (I hope you have a slang dictionary).

Of course every home owner *likes* (digs) his garden *nice* (cool). In addition, in summer, he wants it really cool for top enjoyment. How can he achieve it?

A friend of mine claims it’s all in the mind. By using the right psychology, the proper colors, the correct lines and masses, you can create coolness in your imagination, even though the actual temperature may be not a degree lower. There is some truth in the claim: we’ll come back to the actual working out at the end of this article.

In Colorado, however, there is an enormous difference between shade and sun in a garden. In the forenoon we may not mind the sun too much, in hot afternoons shade is almost a *must*.

You can almost make it a general rule in garden design, to plant a shade tree to the southwest of any patio or sitting area, and to the southwest of the house to provide shade to the hot rooms.

What kind of shade tree? A landscape architect with a conscience—a highly important portion of his make-up—will try to argue his client

out of planting one of these “quickie-trees,” like Chinese elm, willow, or poplar. They do provide shade within a year or two, sure enough, but in a few years afterwards may break in a heavy wind or snowstorm, or their roots may find a sewer to plug up. A speedy solution is often not a permanent solution.

In many cases a honey locust fills the bill. It is not too slow a grower, has good looks in winter and summer, and provides shade at the very time when it is needed: midsummer, but not in spring. The thornless kind is essential; if you dislike the pods, there is a new podless type, the moraine locust (patent No. 836).

Lindens are proverbial “house-trees;” they are medium-fast growers, clean in habit and their flowers have a delicious fragrance.

Hackberries, American elms, ash, and maples can be used for shade-trees. Oaks are slow growers but many have a rich fall color. Catalpas are beautiful in flower and pod, but some people object to the dropping of these beauties and to the rather coarse leaves.

In general, crabapples, russian-olives, hawthorns and white birches are less suitable as shade trees in this sort of a location.

Lately we are doing much more in providing non-living shade in the garden: overhead awnings of patios, decorative lattice work of pergolas, various material in plastic or glass for sunshades. Here is an opportunity for the artistic and ingenious home owner to "let himself, or herself, go." Contemporary design has widened the possibilities and modern fabrics are added day by day.

One difficulty with some of these materials has been the fact that they become heat traps; instead of cooling devices through providing shade they prevent circulation. The solution may lie in a double roof with airspace between or in a sort of louver device by which shade is provided but hot air allowed to escape. Again, ingenuity will find a way.

In some cases a "convertible" roof may be designed; if a car can have it, why not a patio? In such case, special attention should be given to the "framework": it should be decorative.

Garden umbrellas are generally quite good looking and practical. Recently, (was it at the garden fair?) we noticed the European "bath-chairs" on display, hooded wicker chairs that can be turned away from either sun or wind; they have good possibilities for the garden. We are really making the garden liveable!

In Italy they provide a cool garden by running water; Spain does to a certain extent. Colorado should take its cue from both. Modern technique makes it possible to use a little electric engine and pump to circulate the same amount of water: the cooling effect is the same, both actual and psychological. I remember a garden in Tivoli, Italy, where the running water caused a drop in temperature of a number of degrees.

Wall fountains, miniature waterfalls, little jets of water all have their place, even in a small garden. The result is quite disproportionate to the amount of money spent on them. Eventually we are going to use this running water in our gardens, why not now?

Let us come back to this so-called psychological angle of the cool garden. We talk about cold colors and warm colors; is there any real merit to the designation? Try it out on yourself, either indoors or outdoors. There is no question but you'll find a restfulness in blues, greens, and greys, whereas vivid scarlets and reds and orange have an exciting effect.

Why not use it in summer gardens? Hardly anything is equal to the quieting result of a green, unbroken piece of lawn. Hedges have a similar effect; so do masses of shrubbery. So, if quiet is what you want in summer, have fewer flowers and more greenery, both in lawns and shrubs. What flowers you must have, choose in blues, whites and greys. Cold purples are not too difficult, except in the matter of good color combinations. But then, it is surprising how much harmony can be restored by masses of white in the flower border.

So much for color. Lines and masses can be either restless or soothing. Avoid intricate designs for a cool garden; straight lines and long flowing curves are tranquilizers. Avoid reflecting surfaces and glaring cement. Vines may do much on wall surfaces.

In conclusion then, shade, water, quiet colors, and lawn expanses will create your cool summer garden. And, take it easy yourself.



ANNUALS AND PERENNIALS IN AUGUST

By KATHRYN KALMBACH

To many gardeners, August is the month when we would like to shut the gate on the garden, forget such things as spray-guns, lawn mowers, weeds, hoes, and never ending irrigation, and run away to the mountains or seashore. But for stay-at-home gardeners, August brings its round of garden chores, along with glorious rewards for these tasks. If we have done a bit of planning earlier in the year, August in Colorado may be the most colorful month of the year. Now many plants reach their peak growth, while still safe from even the earliest of frost damage.

The following suggestions may come too late for this year, but we hope they may inspire a few garden notes for next spring's planning. Our cool nights and warm days at this time of year are ideal for growing many colorful annuals, and most of them reach their peak of perfection in August. Our cool and damp spring this year may have delayed the germination of early planted seeds, and may have necessitated replanting of some. But they are all making up for lost time these warm days.

We hope many of you planted some of the more unusual annuals along with the older favorites. *Godetia*, the satin flower of our Grandmother's, is lovely in pastel arrangements, easy to grow, and not seen as often as it should be. *Arctotis*, the blue-eyed daisy; *Lavatera*, the annual mallow; *Neophila*, baby blue-eyes; *Nierembergia*, dwarf cup flower; *Schizanthus*, or butterfly flower, poor man's orchid; and *Torenia*, the wishbone flower, are

some others that are easy to grow, do well in our state, and add interest to the garden.

Then let's not neglect the old favorites of Grandmother's day — balsam, *Clarkia*, loveinamist, painted tongue (*Salpiglossis*) or velvet flower (*Scabiosa*), and the pincushion plant; all still worth growing. Her old favorite, cockscomb (*Celosia*), is in high favor these days of dried bouquets, and now comes in lovely soft gold and pinkish shades, as well as the velvety reds of old.

And did you remember to grow some "everlastings" for those winter bouquets? Globe amaranth and strawflower are both easy and good. While on the subject of winter bouquets, now more appropriately called "dry arrangements," we hope you are leaving a few interesting seed pods to ripen for use with colorful borax-dried flowers. All good gardeners are supposed to keep flower borders neat by cutting off all faded blooms, but let's not be so neat that we miss out on the beauty of some of the ripened seed vessels. We are all familiar with the very ornamental seed pods of the poppies—both annual and perennial, but many others may surprise you with their beauty.

If you staggered your plantings of gladioli and are enjoying some lovely late blooms, try leaving a spire or so to ripen and dry. A gladiolus seed head is seldom seen, and is so very ornamental.

The perennial border this month should have plenty of interest and color. The phlox in many shades, the michaelmas daisies, both tall and

dwarf, the early blooming chrysanthemums, and many lilies are all to be relied upon for copious bloom. And this is the month to divide Oriental poppies, iris, and to start seeds of sweet william and Iceland poppies, for bloom next season. These and some others benefit by being given time to establish themselves before cold weather.

This is the month, too, to enjoy the herb garden, sniffing sweet scents, and garnering savory flavors for later use. A few snips of salad burnet in the salad brings a cool cucumber taste on a warm August day. Pour hot cider vinegar over generous sprays of tarragon. You will never want to use plain vinegar again! Make some basil vinegar the same way, and don't forget that leaf or two of sweet basil in each jar of tomatoes as you can

them. Your fresh rubbed sage, rosemary, thyme, and marjoram, far excel any on the grocer's shelves. Dainty sprigs of chervil make a delightful garnish for any dish. And we hope you love the sprays of lavender flowers among your linens. Last, but not least, the many mints, planted where they may flourish without driving out their neighboring plants. As you enjoy the bright colors of the August garden by day, we hope you are also enjoying the beauty of many white and fragrant flowers in the early warm evenings. As the evening shadows fall there is nothing so cool and refreshing as the accents of white flowers you have provided in your garden. White petunias, white perennial phlox, white nicotiana, and white chrysanthemums, etc., are all part of the enchantment of a garden by moonlight!



ROSE SPRAYS

Dr. Earl K. Wade, University of Wisconsin extension plant pathologist, recommended an all-purpose rose spray of 65% zineb (one tablespoon of dithane Z-78 or two tablespoons of parzate or fungicide A); three-fourths tablespoons of karathane (mildex); two tablespoons of wettable 50% DDT or three tablespoons of wettable 50% methoxychlor; and two tablespoons of wettable 25% malathion or one teaspoon of liquid 50% malathion. He also recommended a dust of 5-7% zineb; 75% sulfur or 1% karathane (mildex); and 50% DDT or methoxychlor. "Apply a 4% malathion or spray separately to control insects. Generally sprays are more effective than dusts, but in either case be sure to cover all plant surfaces every seven to 10 days."



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TREES— OUR GLORIOUS HERITAGE

By HAROLD PALMER PISER

In the beginning God created the heaven and earth. And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind, and God saw that it was good.

Genesis 1:1, 12.

Down through the ages trees have been the universal symbol of God's bounty of good and plenty in the material realm. Today we are rapidly losing this glorious heritage. Land is being cleared of trees and other plant life for vast new developments. The beautiful countryside is vanishing. Unless we "catch up" and put a stop to this thoughtless and wholesale destruction, all of this natural inheritance—our trees, God's beneficence to man—will disappear.

Whether in primeval stands of unspoiled beauty, in forests and orchards that yield products essential to man's existence, or as beautifiers of our home grounds, city streets, and country roads, trees are our friends. As conservers of soil, water, and wildlife, as cool and restful shelters, affording places for recreation and nature study, trees need our understanding, our love, care, and protection. *God saw that they were good.* He meant for us to use them wisely, by seed to propagate and to foster their well-being. Thus would His



good and plenty forever benefit mankind.

Many trees have been felled for fuel and to make room for the growing of crops. That was good—then trees were plentiful. Many trees have been cut for lumber, for the making of paper, and the innumerable other products derived from them. That, too, was good—when trees were plentiful. Many trees have been used to beautify our homes, our streets and roadsides, have given us cool, restful shade, stirred and satisfied our aesthetic senses.

But man, in his greed for opulence and power, has ignored the necessity of re-planting the "seed" so thoughtfully created by Divine Providence. He is more rapidly depleting the land than reforestation can keep pace with. He is making us a treeless people. Self-propagation and the planting of seedlings and reforestation generally cannot keep up with the tremendous demand for forest products. Tree nurseries are not only increasing in number, but in size. Almost endless rows of seedlings are not an uncommon sight. Federal, State, and private enterprises are working at full capacity in an effort to counter-balance supply and demand. It would not now be necessary to go elsewhere for some of the raw materials, had the

"seed" been planted, as God provided.

Not satisfied with almost clearing out the forests and the woodlands, man is now sweeping our streets and countrysides clean of trees. In the cities, he is removing one after another of our shade and ornamental trees. Some day in the not too distant future none will be left, so fast is his destruction, except in parks, garden centers, botanical gardens, and arboretums, where men of wisdom and science are trying hard to retain and replace some measure of this natural beauty. Tree-shadeless streets and roads now meet the eye almost everywhere; the once attractive tree-lined main street of an urban community has been lost in the march of progress. Traffic conditions demanded more space for parking. Down with the trees!

Man is spreading into the suburban areas and throughout the countrysides. Construction of every sort goes on at a frantic pace, in mass quantity and gigantic size. Except in rare instances, plans include no fair and reasonable provision for retention and replacement of shade and ornamental trees; hence vast areas are cleared of all plant life and particularly of trees. With mighty machines the ground is bulldozed, excavated, leveled-off; nothing remains but subsoil, sand, and gravel.

Some means must be found to halt this new army of invaders and destroyers, the real estate developers, builders, and the contractors—mind you, not all of them, but the speculators and the "fly-by-night" builders whose only thought is to make a quick profit and then move on to the next site. Impressive and far-seeing are the plans and programs of the better class of builders; care of trees

is a very definite part of their specifications. It is the selfish and unscrupulous ones at whom we point our finger. It is they, along with the thoughtless and careless contractors, who destroy trees, kill plant life, and scatter the topsoil; who scar trees or wound them deeply, who lay bare roots or pile soil high around tree trunks and upset water tables. Trees so badly treated are doomed to slow starvation, to certain eventual death, and "conservation" is put to shame. Bulldozer, steamshovel, and grader, axe, saw, and pick are the armaments of this new kind of enemy. They must be stopped before *all* our trees are gone.

What has happened to the planners and the architects, these men of vision? Does natural beauty no longer have place and purpose in every sketch, plan, and blueprint? Have they forgotten that trees enhance the beauty of any property, be it private, commercial, or public; that values are increased, selling made easier, simply by retaining as many trees as possible? Trees should be of equal importance to line and measurement on blueprint, more than simply a "filler-in" on sketch. Trees should be a definite part of planning, long before blueprint is made, and the new property owner saved the expense of acquiring costly specimens to replace those needlessly destroyed in the building operations.

What of civil authorities, the ordinance and lawmakers? Have they forgotten their duty to community and citizens, as well as God's trust? They must be blind not to see what lies ahead, not to recognize that trees are the natural beautifiers of homes, streets, and roadways, of communities, towns, and cities; blind not to consider, too, the conservation factors involved, all so urgently impor-

tant if a continuance of "peace and plenty" is to be maintained.

Everyone's interest must be enlisted in stopping the ruthless destruc-

tion of trees and in encouraging their protection.

Reprinted from The Garden Journal of The New York Botanical Garden Sept.-Oct., 1956.



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SOME NOTES ON GIBBERELIC ACID

By DONALD P. WATSON,
Horticulture Department Michigan State University

Since we have been receiving many questions concerning the use of Gibberellins on nursery crops, here is a summary of the information that is available to date. It is used:

1. To stimulate some plants to grow four times faster.
2. To break dormancy of seeds earlier or without special temperature or over-ripening treatments.
3. To form flowers.
4. To set fruit and produce seeds more rapidly than normal.
5. To overcome dwarfism in some plants.
6. To produce substantial increases in yield and dry weights of some crops.
7. To cause some long day plants to flower when grown under short photo periods.
8. To cause fruit to set in the absence of pollination.
9. To promote earlier germination of seeds.

In the future, Gibberellins may be as important as DDT and 2,4-D, but as yet, only a small number of scientific tests and very little field testing have been performed. The Gibberellins are not hormones and not fertilizers. They are derived from a fungus which has been known for many years to affect the growth of rice in Japan. Commercial brands of Gibberellins are on the market and they no doubt will have a remarkable effect on nursery stock.

Naturally the question which will be foremost in all of your minds is what use can be made of this ma-

terial in your nursery. It should be stressed that it is still early to use it on any large scale. We have found that some plants respond very quickly, while with others it takes large amounts and repeated applications. We have found, for instance, that it is very difficult to have the material penetrate the heavy cuticle on narrow-leaved evergreens. At the present time, in the Plant Science Greenhouse, we are using very high concentrations and certain solvents to attempt speed up growth of junipers. Young succulent plants seem to respond differently from older ones. It is important to know the sensitivity of the plant to Gibberellin at the stage in which it is applied. For instance, one could very easily miscalculate and either obtain no effect at all or use too much of the chemical and produce plants that are spindly, weak and poor. It is certain that the use of Gibberellin will not overcome the effects of poor growing conditions and it will not be of any great advantage on plants that are not already receiving a good supply of nutrients, sufficient light or are growing in poor soil.

We are using the material to try and speed up the germination of Merion bluegrass.

In general, the results are spectacular and the tests are being conducted by many commercial manufacturers, investigators at many universities, agricultural experiment stations, and the Department of Agriculture. We shall pass along all information as soon as it is available.



ESTABLISHING A HIGH PLAIN LAWN

By ROBERT W. SCHERY, DIRECTOR
BETTER LAWN AND TURF INSTITUTE

Although everyone relishes a fine lawn, Denver has perhaps a higher proportion of good lawns than most similar size cities. The excellent adaptability of Kentucky bluegrass and its cool weather compatriots to Denver's high (i.e. elevated) living partly explains this, but I suspect that even more so certain climatic difficulties make Coloradoans appreciative of their grass.

In many favored places, where grass "just grows," weedy lawns, improperly mown, are taken for granted. It would be easy to have the perfect bluegrass lawn. But since bluegrass does reasonably well on its own, little attention is paid. Possibly the home owner doesn't even distinguish between bluegrass and crabgrass, or nimblewill.

A rule of nature is that living things must adapt to their environment, or die out. Before man came with irrigation, high plains country was largely semi-arid, the haunt of adapted buffalograss and other prairie species able to survive on the normally less than 20 inches annual rainfall.

Rainfall and drought have always been of overriding importance. Soil fertility, weeds, disease, become determining factors only after irrigation wipes out the limitation of drought.

There are locations, where by virtue of altitude or position, the drought limitation does not strictly apply. One can find excellent "wild" Kentucky bluegrass, for example, along the Dallas trail in the high country of the San Juans!

But for the high plains near the

east slopes of the Rockies the weather averages show something of the following. The rainy season is short, confined mostly to late spring and summer. Normally there would be 4 to 6 inches of rainfall in spring, perhaps 6 to 8 inches in summer, 2 to 6 inches in autumn, and only 1 to 2 inches in winter. On the average there is less than a 5 per cent chance of even the rainiest months (June and July) having as much as a 5 inch total of rainfall.

So, for the fine bluegrass lawn, we do need irrigation first of all. Studies at A & M have indicated as much as 2 inches per week during the height of the growing season to be desirable, although many a home owner knows it is possible to get along with much less. But we must predicate any lawn establishment for the area upon ability to water; most certainly at seeding season. For the new lawn, check adequacy of pressure, sprinkler capacity, and proper devices to apply water slowly enough so that it soaks in, doesn't run off.

The high plains have an advantage over much of the country in the generally cooler and less weed-ridden summers. This permits seeding in spring as well as autumn. But even in Colorado autumn and winter weeds should be less a problem than summer ones. My inclination would be to plant the new lawn in August, water it regularly to get a fast start, and keep an adequate supply of moisture in the soil right through the winter. If the grass has had chance to become well established before freeze-up, there should be reasonably

little loss through winter, and a vigorous start in spring which will get the jump on summer weeds.

The practices in seedbed preparation and initial establishment would be little different in the high plains than for any other part of the country. In brief, the soil should be tilled to make a loose surface, preferably to a 6 or 8 inch depth, and one to two yards of organic matter per 1000 sq. ft. should be incorporated into the soil. I know that on some adobes the usual tillage devices have trouble. And maybe deep tillage is not so important here as it might be in other sections of the country, since the winter freeze-thaw is sure to produce a little of nature's soil cultivation.

A soil test or general experience with the soils of your district will indicate if any fertility element is especially lacking, or abundant. Most important for grass is nitrogen. The safest procedure is to employ, at least for seedbed preparation, a fertilizer containing all of the major nutrient elements. I would suggest about 20 lbs. to the 1000 sq. ft. of a complete plant food high in nitrogen—that is one containing nitrogen, phosphorus and potash all, listed percentage-wise on the analysis tag in that order. Fertilizer applied in autumn won't be lost. The fertility elements are trapped in the soil and by the young grass, carried over into spring. This even though there seems to be no great response during the cooling weather of autumn.

Another feeding will be desirable in spring, and that would be a good time to apply one of the newer slow-release nitrogen fertilizers. Equally effective, but more laborious, would be several lighter applications of conventional fertilizer through the growing season.

In starting a new seeding it is always helpful to mulch. This is doubly

desirable in the high plains, where water is limited and drying winds cause rapid desiccation. Use any loose material that is cheap, available and won't blow away. Straw and hay are the most common mulch materials, applied to a depth of several intertwined straws. In windy spots it might be necessary to tie with string between stakes. Other materials used as mulch include soaked sphagnum moss, wood chips and twigs, loosely woven burlap, even pebbles.

Preferably, mulch materials are left on the lawn to decay. Decay will proceed rapidly when there is warmth and humidity. Occasional application of nitrogen (such as ammonium nitrate, ammonium sulphate, urea, or such like) will both boost grass growth and help in the break-down of carbohydrate materials the likes of straw or ground corncobs.

One of the virtues of the Colorado climate is that the drying winds and natural aridity limit disease. The springtime leaf spot that one finds in Maryland, for example, is seldom seen in Colorado.

Though the sun is bright and potential drought may be lurking, the steaming summer heat of the midwest is never in evidence. Thus bluegrass well treated (watered and fertilized), will be quite tolerant of mowing practices that might spell doom farther east. My personal preference is for a reasonably high cut. Perhaps this is because the only way to save good bluegrass in the Mississippi and Ohio Valley is to maintain it mowed high through the summer. In Colorado a high cut discourages crabgrass and prevents burning.

It is axiomatic in lawn care that wherever turf fails, weeds invade. There is no substitute for maintaining a thick tight sod of grass. "The

strength of the pack is the wolf, the strength of the wolf is the pack," to quote Kipling.

However, when occasional weeds appear, or when they are usurping a new lawn not yet filled to sod, modern herbicides offer ready help. 2,4-D formulations take care of most lawn weeds, although for summer grass types a crabgrass killer (containing such chemicals as PMA or methyl arsonate) might have to be called upon. Never use any weed killer until the turfgrass is mature enough to have been mowed a few times. Young tender grass is about

as susceptible to weed killer as are the weeds.

If space permitted we could go on with lots of lawn rules and regulations, most of them proven for the East. But suffice it to say, that in spite of some climatic restrictions, there are few places where it's as much fun "lawning" as in Colorado. Use high quality seed, rich in permanent perennial species such as bluegrass and fine fescue (see April Green Thumb), follow the suggestions just given, and you should end up with a good Colorado lawn while you enjoy good high plains living.



WHAT'S NEW?

The second World Orchid Conference has been in the planning stage for two years and will be held in Honolulu, Hawaii, September 19-23. It will be an unusually interesting and varied program designed for amateur hobbyists, and professional orchidists and visitors, according to Dr. John Herbert Beaumont of the University of Hawaii who is general chairman.

Primarily intended for information exchange, comparison and observation of orchid cultural techniques, the conference is jointly sponsored by the University of Hawaii, American Orchid Society, Inc., and the Hawaiian Orchid Societies, Inc., the central organization of all orchid associations in the Territory.

Renowned authorities on amateur and professional orchid culture from the mainland and the Orient are among the leaders who will speak at the various Conference sessions to an anticipated 1000 visitors from orchid-growing centers on the Mainland, South America, Europe, and Southeast Asia.

Unusual exhibits in the most dazzling sense of the word are being prepared for the orchid show. No entry fee is charged and participants will receive free help in setting up displays, if requested in advance, from Benjamin T. Kodam, Show chairman. He will also furnish rules, regulations and entry forms to all prospective exhibitors. Displays will be in the patios, and galleries of the Honolulu Academy of Fine Arts with 40 silver trophies to be awarded to winners. The show will offer the best and most representative collection of orchids grown on all Hawaiian Islands.

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SCHULHOFF TREE SERVICE

CHRYSANTHEMUM BREEDING AT THE CHEYENNE HORTICULTURAL FIELD STATION, CHEYENNE, WYOMING

By GENE S. HOWARD

It is necessary to review some of the history of hardy chrysanthemum breeding in the U. S. Department of Agriculture to get the background for chrysanthemum breeding at the U. S. Cheyenne Horticulture Field Station. Breeding of the small-flowered, hardy cushion types of chrysanthemums was begun in the U. S. Department of Agriculture by F. L. Mulford about the time that World War I ended. A few hardy varieties from the northernmost boundary of mum survival in the United States, together with the earliest obtainable varieties from England, were collected. These plants were grown in close association at the Arlington Experiment Farm, Arlington, Virginia. Open-pollinated seed from about 40 of the earliest varieties was collected the first year. This seed,

when grown, produced some 16,000 plants, from which about 100 plants with earliness and/or other desirable characteristics were selected, and these were added to the original group.

This procedure, keeping the first 100 plants to bloom and discarding the late, undesirable types, was followed for several years. The average date of flowering of each succeeding group of seedlings became a little earlier, for early flowers were pollinated by early flowers. As soon as 100 seedlings blossoming by October 7 were obtained, that date was taken as the standard in making selections in Virginia. In later years, Mr. Mulford selected 300 of the best and earliest of his selected seedlings for further trial and as parental material for later breeding work. From these



One of the several test plots of Chrysanthemums at the Cheyenne Horticulture Field Station.
Photo courtesy of Author.

selections, he introduced 12 seedlings to the commercial trade in 1937, namely: Algonquin, Amoskeag, Barnegat, Geronimo, Manantico, Matawan, Muskogee, Otsego, Passumpsic, Pohatcong, Seminole and Suwanee.

The Cheyenne Station began full-scale horticultural work in 1931 and 1932, as soon as the construction of buildings was completed. Dr. A. C. Hildreth, the superintendent, began collecting chrysanthemums and assembled about 2,000 named and numbered kinds. In 1934, some of these came from Mulford's selections to which we previously referred. Unfortunately, most of the named varieties collected, lacked hardiness or earliness and only 20 of the varieties tested between 1932 and 1942 were considered early and hardy enough for our area. Interest in hardy garden chrysanthemums in America was beginning to grow in the 1930's as a result of Mulford's work and the introduction of the new hardy Korean strains of chrysanthemums (*C. sibiricum*). Of the 12 varieties previously introduced by Mulford, only 5 proved to be sufficiently early and winter-hardy at the Cheyenne Station. These 5 (Algonquin, Manantico, Pohatcong, Seminole, Suwanee), were made available to nurserymen of the area, and 10 other seedlings of the same origin (Absaroka, Arapahoe, Laramie, Osage, Pocatello, Sioux, Teton, Uinta, Wasatch, Winooski), were jointly introduced from the Cheyenne Station in 1938, 1939, and 1940. Some of these are still being advertised in nursery catalogues, and all served a useful purpose at the time and formed a source of extremely hardy and early material for much breeding work in later years.

Meanwhile, our variety testing continued, and open-pollinated seed was

saved from any variety that was early enough to mature seed out of doors in our short growing season, which has a frost-free period of about 120 days.

About 3,000 seedlings were grown each year without any special care. The severe winters selected them for hardiness and the strong winds selected them for strong bush habit so that they needed no staking or pinching. Plants were left in the same location for two or more years, and then the surviving plants were grouped together to conserve space, and from them selections were made to be sent to cooperators for trial. These cooperators were located in all the northern and western states and in some of the provinces of Canada. The weather, as stated, selected these mums for hardiness and plant type, and Dr. Hildreth and his assistants selected them for earliness and flower quality. The variety Ogallala was released in 1941; the varieties Arikara, Dakota, Flicka, Hidatsa, Lt. Beckner and Waku in 1947; the varieties Overley and Roza in 1952; the yellow sport of Alabaster, named Alabaster Gold in 1954; and the variety Cayuse (for the Pacific northwest only) in 1956.

By about 1950, we had several lines of mums that had become quite pure for earliness, hardiness, and desirable plant characteristics. These parental lines have proved valuable in the mum-breeding programs at many other places, including the University of Nebraska, the University of Minnesota, Montana Agricultural College, the Dominion Experimental Station at Morden, Manitoba, Canada, and elsewhere. Also, we have sent seed in recent years to New Zealand, Norway and Afghanistan.

Still, despite all the desirable characteristics in the Cheyenne Station

mums, one fact was quite plain: they lacked the large, high-quality flowers to which the public was generally accustomed through contact with greenhouse and other less hardy mum types.

The writer's work at the station since 1951 has been to collect the most hardy, outdoor, large-flowered varieties available and make controlled pollinations with the early, hardy station stocks. The varieties

used came mostly from Nebraska, Michigan and Minnesota. This program to combine flower quality with earliness, hardiness, and desirable plant characteristics is continuing.

No doubt the greatest permanent value of the early, hardy Cheyenne mum stocks has been and will continue to be as parental material rather than for the varieties introduced from these lines.



PEEK AT THE MAIL

Dear Mr. Gallavan: The April issue of THE GREEN THUMB was a most pleasant surprise. It was truly an "Arbor Day Issue." I compliment you on your initiative and ingenuity. My sincere and personal thanks.

Governor McNichols sent me a copy of his Arbor Day Proclamation, as did practically every other governor. I was partly responsible for getting President Eisenhower to plant a tree at the White House on April 12; you may have seen a picture of the ceremony in your local papers.

Now to get a good following and to plan and prepare for next Arbor Day well in advance, with constant reminder in the meanwhile. Do you have any suggestions? Every good wish.

HAROLD P. PISER
Managing Director
Arbor Day Association

From Mrs. F. H. Trimble; La Junta, Colorado:

Dear Mr. Johnson:

I appreciated so much having the copy of The Green Thumb containing your article on Memorial Forests—just one complaint—it was far too brief!

I am proud of having had a small part in this spendid project of re-

forestation and regret our women of C.F.W.C. could not have done more than we did. But I believe we are again taking up this particular project. As I very well know, it takes constant education or at least, PRESENTATION, to each year's leaders of the individual clubs.

Thanks so much for sending the magazine; and continued success in your good work.

Dear Friends: I am sure that you will be interested to hear that we have received a nice gift from Mrs. I. P. Schoo of 2650 Dexter Street, Denver. It is a wonderful project arranged on a tray with several small flower pots showing the growth and development of the African violet, from a single leaf rooted in water to the full grown plant in bloom.

With it she sent a pamphlet giving the history of the violet and also included on the tray were plant foods such as golden earth, rooting medicine, etc. We are grateful to Mrs. Schoo for giving us this opportunity to share in her interesting work.

Sincerely,

MARIE M. COUNTS, MANAGER
Old Ladies Home
Denver, Colorado

REPRODUCTION IN PLANT LIFE

By W. F. WILLARD

In all forms of biotic life there is visible evidence of Nature's chief purpose—to multiply. The creation of a new life is a development from the old or parent life. The basis of all living things is the fundamental cell which leads us back to the Garden of Eden and the beginning of all life in one unbroken chain. The museum helps to retrace the steps to the past through exhibits of plant fossils.

There are two methods of plant reproduction—asexual and sexual. Some plants use asexual or sexual, some use both. When the sexual method is involved, the union of the egg (ovule) of the female, and the germ of the male (cell) is necessary to form new individual plants through the flower which is the sexual organ of reproduction by either method. Parthenogenesis sometimes occurs where the embryo plant develops without fertilization of the egg, but this is a rare incident.

The moot question, "Which came first, the chicken or the egg?" is not germane here. More important is what causes or determines the germ of life within a seed capsule which Nature has created for a plant's perpetuation. This brings us back to the one and only purpose of living materials, reproduction.

The miracle of our cornfields is not the number of bushels each acre produces, nor the methods man has devised to increase the yield, nor the necessary benefits of natural elements, nor the many derivatives from plants acquired through chemistry in daily use, but it is in the pollination or fertilization of each grain of corn in what is called the monoecious process in Nature. Here in an ear of corn, is wrapped up the secret of life which

goes on in varying phases in vegetative life all about us.

But have you noted how meticulous Nature is in the process? When you plant a row of popcorn near a row of sweetcorn, there will be grains of each crossed over from stray pollen or spore cells from the tassels which are the stamens of the corn. Hybridization begins here.

Nature also assists reproduction through insects. The honeybee is a subsidized agent for fertilizing fruit trees, shrubs, and forest trees. It is a sad commentary that *Apis mellifica* is robbed of the fruits of its labors by commercial vendors, but this is a tale of "Love's labors lost." While this miracle has extended our life line in no uncertain terms, the steady demands for renewable resources to maintain the human segment of society causes research to probe still deeper. The actual necessity of cross fertilization among our trees and clovers, for instance, has been proven. In fact Nature provides either cross or self-pollination where fertility or viability is required.

However, flowers of many plants are not visited by insects. Such plants would include grasses, oaks, pines, and other conifers, for here the wind takes over. Such pollen is constructed for buoyancy. Corn pollen is also aided by the wind, but man and his science has sought to abort Nature in his selfish effort to hybridize and increase his crop. The study of botany reveals other devices that aid Nature in this fascinating story of reproduction. Darwin says that the most interesting of these devices are to be found in the curious arrangement and contrivances in orchids. He says they are as perfect and beautiful adaptations as those

in the animal kingdom. Insects are most necessary to the reproduction of these aristocrats for here the stamens and pistils come together or are confluent. Within the anther, which is divided into two cells, lies the pollen or male fertilizing element. Contact with the stigma carries the contents of the pollen grains down to the ovules. From here on Nature silently takes over in its perpetuity. We find an orchid in its native habitat and marvel at its beauty. Then we pass on to the next, little dreaming of the wonderful hidden mechanism in this floral jewel that multiplies its own kind with only the aid of an insect.

Still lower down on the vegetative scale, and more difficult to segregate in biotic terms of genesis are the flowerless plants—the ferns and their allies. These species reproduce almost entirely by spores arranged in sporangia of sori in spore cases on the fronds of each species. This is an interesting method of identification, but not any more interesting than the way the fern reproduces.

Perhaps you have already noted the fruit dots upon the underside of the fern leaf, their size and shape, their particular loci thereon, and their color. When ripe, millions of spores are released by the wind to take the first step to fruition. This process of reproduction in ferns has not been fully explained. All we know is that the different fern genera are classified by the various ways the spores are arranged upon the fronds. To the botanist nearly all of the spore-bearing ferns belong the *Polypodiaceae* family. They are found all over the earth and are most luxuriant in the tropics, but methods of reproduction remain the same in any latitude.

These spore cases on the fronds are sensitive to moisture. They depend upon air currents for distribution, and are thus carried many miles be-

fore finding a suitable lodging. They also differ in shape and loci depending upon the species. Some species produce both sterile and fertile fronds which are commonly called "fiddle-heads" in spring. The mystery of fern reproduction from spores was not discovered until 1669 and it took two more centuries before the functions of spores and prothalli were developed, according to Walters. If allowed to lie upon moist soil for a few days, the spore may begin to germinate, in which case a tiny heart-shaped green prothallus about $\frac{1}{4}$ inch in diameter sends out "rhizoids" or tiny rootlets to the soil in what is called the "gamete" stage. On the underside of the prothallus are the reproductive organs, antheridia and archegonia, from which numerous microscopic bodies swim around in drops of water until one of them enters the open archegonium and unites with an "Oospore" or egg cell. This now enlarges and divides into four cells from which come root, stem, first leaf and foot. The foot sticks to the prothallus, and from it the fern plant derives nourishment sufficient to sustain life in its early stages. This is the "milk bottle" period or the beginning of the sporophyte. In case of several archegonia on the prothallus, only one fern plant is able to survive.

Fungi are a class of plants of which the mushroom is most common. Mushrooms are produced by a mycelium, or thread-like substance. These myceliums are the plants. The mushrooms are the fruit. You must rely upon the fruit to determine or distinguish between species. But they all have the common purpose of ripening and liberating microscopic spores.

Mushrooms play an important part in the vegetative world. Not only are they a tasty dish for the table but they are the disintegrators or soil-makers of the forest that break down dead vege-

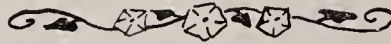
tative matter into humus. Some are deadly poison—reason enough for the necessity of positive identification of a species before eating it. From May to October mushroom hunters are in evidence everywhere. In fact there is so much demand from gourmets for these epicurean delights that the mushroom industry must import great quantities of them.

One of the more spectacular wild varieties in the mushroom world is the giant puffball (*Calvatia gigantea*) which sometimes weighs 25 to 30 pounds. The common ones, of course, are the small buttons that children delightedly "puff" by stepping on them, thus releasing millions of spores. If all the spores so released were viable

and able to renew life, the earth would not be traversible.

Then there are "fairy rings" (*Marasmius oreades*) which are the bane of homeowners trying to maintain beautiful lawns. Rings have been found that are thought to be 600 years old. Each year a new ring is formed outside of the old, like ripples on a pool of water when a stone is dropped in it.

Other microspore fungus cells are the yeasts, bacteria, and moulds employed in food products such as breads and cheeses. And so it goes in the ever fascinating world of plant reproduction. The foregoing are just a few examples in this complex field.



The tenth International Lily Show of the North American Lily Society was held at Cornell University, Ithaca, New York, on July 11, 12, and 13th. It featured many of the new hybrids brought in from many parts of the United States and Canada. Featured especially were the improved yellow trumpet and pink trumpet lilies.

The Isabella Preston Trophy for the best spike in the show went to Jan deGraaff of Gresham, Oregon for his exhibit of "Black Dragon," a new trumpet hybrid. The Directors' cup went to a similar hybrid also exhibited by Mr. deGraaff. The M. E. Pierce Trophy was awarded to an exhibit of native lilies entered by Mrs. Douglas Keith of Vermilion-on-the-Lake, Ohio. George Holland won the Silver Medal of the Massachusetts Horticultural Society and the Bronze Medal of the Toronto Horticultural Society for his exhibit of "Viking." The second bronze Medal of the Toronto Horticultural Society also went to Mr. Holland for his entry of "Rose Queen." The D. W. Griffiths cup went to Dr. E. F. Palmer, Vineland, Ontario for the best unnamed seedling.

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Colorado Association of Landscape Architects' booth at the Home Show. Displays such as this will be an exhibit August 16 at the Schleier Art Museum.

EXHIBITION OF "LANDSCAPE ARCHITECTURE TODAY" CALIFORNIA-COLORADO LANDSCAPE ARCHITECTS

This coming August 16, a new infant organization to the Rocky Mountain area will leave adolescence (almost one year old) and step into adulthood.

Who's bragging and just *what* is this organization? — The Rocky Mountain Association of Landscape Architects. Our organization doesn't want to brag about its progress, but we just can't slow down our enthusiasm in wanting to help people enjoy their day to day living. Our enthusiasm was bursting at the seams

during the 1957 Denver Home Show, April 21-28. More than thirty thousand people walked through our display and watched the slide show, revolving residential landscaped "before-after" models, looked at our sketches and drawings, and chatted with us at our consultation shelter. Proud! You bet we are—and we will be in the 1958 Denver Home Show.

It seems good things always come in bunches, for we had only a few days to catch our breath before putting up the landscape architect's ex-

hibition shelter with some very interesting and unique planting arrangements, using three sizes of painted steel tank ends as bird baths, at the Association's Garden Fair.

Picture page 222, *Green Thumb*, July 1957, Mrs. Ed Honnen, Chairman of the Garden Fair, enjoying a few moments of rest in the Landscape Architect's display.

Why have I been rambling on about these past exhibits? The main reason—if you didn't have the opportunity to visit either the Home Show or Garden Fair, you will have one more chance this year to see the best and most interesting exhibit of "Landscape Architecture Today" at the Scheier Art Museum, August 16 through September 15. The exhibition will be the work of Colorado Landscape Architects and the travel-

ing exhibition of California Landscape Architects sponsored by the California Redwood Association. All phases of city living, home—work—play—travel, designed by landscape architects for economical land development, optimum safety, welfare and esthetic enjoyment will be displayed.

I'm sure even the pathetic wail of "A Victim of Sociability," as described by the article "I Yearn for Privacy," in the July issue of the *Green Thumb* can be quieted down to a sigh of relief by visiting Scheier Art Museum August 16th.

All the "Green Thumbers" and friends are invited. We'll be there—how about you?

GERALD F. KESSLER

President

Rocky Mountain Association
or Landscape Architects



ROSE SOCIETY NEWS

The recent Rose Show held June 30 which was again expertly managed by Clyde Learned had an excellent public attendance of over a thousand. Mr. Learned's son, Gordon, walked off with the Grand Sweepstakes prize with 117 points followed by Mrs. M. E. Nixon with 59 points. Mr. Learned was third with 54 points. Other awards and winners were:

Queen of the Show, Best Hybrid Tea, Confidence—Herb King.

Best Group of Three, La Jolla—Herb King.

Best Floribunda, Red Pinocchio—Ralph Atkinson.

Best Grandiflora, Montezuma—Mrs. M. E. Nixon.

Second Best Hybrid Tea, Crimson Glory—Gordon Learned.

Second Best Group of Three, Confidence—Gordon Learned.

Second Best Floribunda, Siren—James Kummer.

Third Best Hybrid Tea, Happiness—Erwin Andersen.

Third Best Group of Three, Mojave—Roy Littlejohn.

Best Arrangement, No. 205—Mrs. Ray Turnure.

Take A Chance, No. 211—Mrs. Ralph Atkinson.

American Rose Society, Horace McFarland District Trophy (Peace, Mojave, Charles Mallerin, Confidence, and Symphony)—Roy Littlejohn, winner; runner-up, Al Albera.

Total number of roses entered in the contest—773.



WHAT ARE BOTANIC GARDENS?

By ROBERT L. WOERNER, DIRECTOR

Botanic gardens are areas for the display, maintenance, labelling, and study of plants. This skeleton definition serves to separate a botanic area from the familiar park, but each part of the statement deserves amplification.

One of the unique features of our Denver Botanic Gardens will be the fact that there will be more than one area. We have access to areas of great interest in the nearby mountains, and units of the gardens have been planned for different altitude levels. This has been discussed at length in a previous article in the *Green Thumb*.¹ An additional site or sites may be developed within the city to carry out the functions of the gardens more efficiently and to provide the proper protection for the proposed plantings.

Within all of the areas that may be developed by the Botanic Gardens the plants will be displayed for the public. This entails some colorful beds to attract even those who are not gardeners by profession or hobby, so that they too can reap some enjoyment from the gardens. These displays will be changing in line with the function of the Botanic Gardens to grow the best plants for this area. Plants will have to be evaluated before they are made a part of the display, and as newer and better varieties are discovered, they will re-

place less ornamental or less hardy specimens. This applies particularly to the annuals and perennials which produce the "showy" displays of the gardens. In alpine or mountain units the displays will assume a different character, for in these areas the native trees, shrubs, and flowers will be identified for the enjoyment of the people. Nothing will be done to create artificial environments for these natives which will be seen at their best under the natural conditions of their true habitats.

Maintenance is the next important word in our definition. Without adequate care the plants in the Botanic Gardens will have little value. Our ultimate goal is to concentrate the high maintenance garden areas in one unit, and there maintain the plants in a state of perfection. Poor gardening can only result in poor plants improperly evaluated. The Botanic Gardens must set an example in how plants can and should be cared for.

Of course, adequate maintenance means research into the methods now in use and studies on how to improve or simplify these existing methods. With the soil, sunlight, and rainfall that we have in Colorado, we have problems which differ from other gardens and have to be solved by us. Much has yet to be learned about increasing the hardiness of plants through the control of water, plant foods, and exposure. Insects and dis-

¹ See April, 1957, *Green Thumb*.

eases attacking our plants must be investigated if our plant displays are to be kept in the best condition. It is obvious then, that a great proportion of the work connected with the Botanic Gardens will be devoted directly or indirectly to maintenance of plants.

Labels are the earmark of a botanic collection. They are provided so that people may learn about the plants which are being grown. The Latin names which may trouble the home gardener are important to the professional botanist and the student, but the common name will be prominently displayed for all to see. Labelled plants permit gardeners to select those species and varieties of trees, shrubs, and flowers which he likes. It makes it possible to choose plants without reference to the colored pages of a catalogue, and this choice can be an assured one, for the plants will have been proven in the gardens. Too often people are carried away by colored pictures or misleading advertising and buy plants unsuited to the Colorado climate.

Labels may take the form of numbers in our mountain units, and guides or keys will provide the name and other interesting facts about the plant and the community in which it grows.

We have left the most important part of the definition until last, and that is the word *study*. Botanic gardens are areas for study, and if they do not fulfill this function they are merely a park with trees, shrubs, and flowers on display. This does not mean that our Botanic Gardens must be filled with botanists peering at a flower stamen with a ten-power lens, nor does it mean that organized groups must be led from place to place for lectures on the various plant groups. Studies within the Botanic

Gardens may assume many forms. The garden-clubber with her pencil and pad at work jotting down rose varieties is studying the plants for her own purposes. Others may study plants more formally. Henry Teuscher states that learning through beauty is the keynote of the Montreal Botanic Garden, and we hope that everyone who uses our gardens can be encouraged to learn something about the plants which he sees.

In more formal vein, study leads us to the organization of the Botanic Gardens which must have adequate administration facilities and staff. The training of gardeners is an important field to be entered. Classes in ornamental horticulture will enable large numbers of our homeowners to study at the Botanic Gardens. Members of the staff may work with related institutions in formal or informal courses. Instruction can be carried to the schools to give young children a chance to learn something of the wonders of growing things. An adequate library and herbarium must be developed and a year-round program must be conducted to get maximum use from our gardens.

Research again, will be studies made by the staff of the Botanic Gardens in cooperation with other professionals and amateurs. Much has yet to be done about utilizing our native plants, developing a larger number of ornamentals for the nursery trade, producing hardy strains of desirable plants, and many other projects in the wide field of horticulture.

These paragraphs have outlined what botanic gardens can be. It is a great challenge to our new Denver Botanic Gardens—one that we cannot hesitate in accepting, for by so doing we will best serve the people of Colorado.

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FLOWERS ON DENVER'S CIVIC CENTER

The flower plantings on the Denver Civic Center have been unusually good this year. The color combinations have been attractive and the growth of the plants has been very satisfactory. Like all the other floral arrangements, these were designed by Frances White Novitt, under the supervision of Edmund Wallace. The colors and their combinations have been simpler than in past years and the effect has been quite good.

This view shows the flower planting with Denver's City and County Building in the background. It does not show all the planting in front of the building but it gives an idea of the setting of the building with the foreground of color. The Capitol grounds never have had any color and some floral planting on Broadway where it would be seen by millions of people during the summer, tourists and natives alike, would add a great touch to the grounds. An arrangement between the City Park Department and the Capitol management might give us a floral effect without much additional expense.

—S. R. DEBOER.

Seasonal Suggestions

It looks like August will be a fine fishing month with streams full and clear. Whether fishing's good or not is immaterial, however, as long as we get up in the mountains a time or two this month. The abnormal moisture pattern this spring has produced a spectacular display of wild flowers. During August the flowers should be particularly good in the high country. A word of caution however—this is also a critical month for forest fires, so be careful with lighted matches, cigarettes, and camp fires. Noticed in the paper the other day that several persons were apprehended under our new anti-litter law. Their fines were suspended, but they spent some time under the supervision of a patrolman cleaning up the roadside they had so carelessly littered. Hope we never meet any of you under similar circumstances!

August can and should be a lazy month for gardeners with well-established gardens. However, it can be a very busy one for new home owners. For them it's an excellent time for putting in a new lawn. Fall lawns in this area do very well, particularly if they are started early. Soil preparation, that is, the removal of building debris and the incorporation of considerable organic matter, can be done during the early part of this month. The actual seeding should be done between the 15th and 31st of August for best results. The preferred grasses in this area are Kentucky bluegrass and Marion bluegrass. When buying grass seed, remember that quality is much more important than quantity.

If you follow a regular lawn fertilizing program, an application of a complete fertilizer such as MorGro, Vigoro, or Milorganite is recommended for the last week in August. This feeding will help grass roots develop a good root system that thickens up the grass in cool growing days ahead.

If necessary, Oriental poppies should be dug and divided now. Also, tulips and other spring bulbs can be separated and replanted. There's no need to store these bulbs, go ahead and replant immediately. Speaking of spring bulbs—now's the time to start thinking of a location to plant them for a good show next spring. Bulbs will be on the market about the 15th of September, and if you know what you want, you are apt to get a better selection then.

August also has its share of insects and diseases so don't relax on this score. Check your plants regularly. Mildew is likely to be a serious problem on roses during August because of cooler nights. Try not to water roses in the evening and if possible irrigate rather than use an overhead spray. Spraying with sulphur or one of the newer anti-mildew preparations such as Karathane will help control this disease.

Army worms and web worms usually put in an appearance at this time of year. Dieldrin, Aldrin, or Chlordane are the best chemicals for their control.

If you have been toying with the idea of constructing a patio or changing a walk, now is a good time to start these projects.

Some of the fruits and vegetables in the garden should be ready to

tempt the palates of diligent gardeners — corn-on-the-cob, tomatoes, etc.—all pleasant rewards of early season toil.

Several events well worth your consideration this month are the Gladiolus Show, August 11 in the lobby of the Mile High building, and the 4-H Fair August 14 and 15. The Glad Show should be gay and color-

ful and the 4-H Fair is a must if you are interested at all in the achievements of these ambitious young people. Some of the produce they exhibit would put the best Green Thumbers to shame. Last but not least, of course, is the final Look and Learn Garden Tour of the season. It will be August 21st. Plan to attend, won't you?—Pat.

PHOTOPERIODISM

If you think that a plant in the tropics has all the advantages over a plant in cold or temperate zones—you may have to change your mind—for it never gets more than twelve hours daylight during any time of the year. So what? Good plant growers know "what!"

Perhaps you've been babying a tropical plant and it won't bloom for you. It cannot take more than its accustomed twelve hours of daylight. It is known as a *short-day plant*. Some of our autumn flowers belong to this group, such as chrysanthemums, dahlias, cosmos, amaranthus, freesias, and tobacco. Others are poinsettias, African marigolds, ageratums, tithonias.

Greenhouse men have learned how to "fool" such a plant into blooming, simply by shortening the day. Chrysanthemums can be shaded with a black cloth in the afternoon just prior to the time of normal budsetting. This is continued for several weeks depending on the variety and on the latitude.

Sub-tropical grains such as corn, sorghum, millet, and soy beans are also short-day plants. Heat alone will not suffice for growing them successfully, if the days are too long.

Long-day plants, such as China asters, coreopsis, monarda, golden glow, Siberian wallflower, and summer vegetables such as bean pea, potato, lettuce and radish, can likewise be fooled, this time by artificial lighting. They require more than fourteen hours of daylight, and for that reason are not at home in tropical regions. Greenhouses have found there are cases where artificial lighting will pay well for the formation of flower buds of long-day plants.

Not all plants are so particular. *Indeterminate plants* bloom readily under all light periods, bless them. *Intermediates* start flowering in days that are neither too short nor too long, and stop blooming when the days get too long or too short—the finicky kind!

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The Green Thumb

Vol. 14

September, 1957

No. 8

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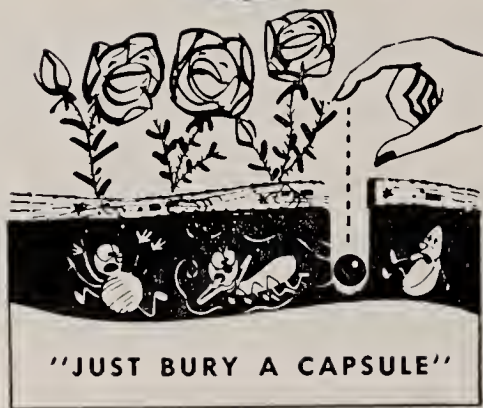
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MEMO

Calendar of Events

September 11 Organic Garden Club meets the second Wednesday of each month at 8:00 p.m. Horticulture House.

September 12 Denver Rose Society meets the second Thursday of each month Room 186, City and County Bldg. at 8:00 p.m.

September 13, 14 Friendly Gardener's Club in co-operation with the Littleton Men's Club, Miraflores Garden Club, Rustic Fence Garden Club, and the Sunshine Seeders Garden Club will hold the 8th annual flower show from 3 p.m. to 9 p.m. across from the City Hall in Littleton. The show is in connection with Westward Ho Days.

September 25 Landscaping for New Homes and Old, Wednesday, 6:20 to 8:00 p.m. Room 200 C. U. Extension, M. Walter Pesman instructor. Class will go through November 20. Registration fee \$10.

Green Thumb Program 9:00 a.m. each Saturday on KLZ, 560 on your radio dial, Pat Gallavan Horticulturist with Dale Morgan.

Garden Guide TV Program, Wednesday at 7:30 p.m. KRMATV Channel 6.

Mrs. Alexander Barbour, Chairman of the Garden Tours, wishes to thank all those who made the Look and Learn Tours such a tremendous success. A full report of this season's tour will appear in the next issue.



Vice President Harry L. Dotson of Colorado State University (left) and Phil White of the CSU Development Fund (right) look on as Pat Gallavan signs over The John Swingle Memorial Fund to the University.

THE JOHN SWINGLE MEMORIAL FUND

The John Swingle Memorial Fund committee wishes to thank all the persons who so generously contributed to this fund. Your donations made it possible for us to turn over to the Colorado State University Student Aid Fund \$2000 in memory of the late John Swingle. With this good beginning the committee hopes this amount can be swelled with additional contributions, so that eventually it can become a scholarship fund.

We all know that the interest in horticulture and its problems in this area is growing by leaps and bounds. We know too, however, that the incentives for young people in this area have not been keeping pace with the interest. The need for scholarships and other student aids is great. What better way do we have, then, than by contributing to a fund such as The John Swingle Memorial Fund? In doing so, we can serve two ends: one, we perpetuate the memory of a man who was dedicated to arboriculture and who continually advocated additional research on our peculiar horticultural problems, and two, we can help deserving and interested students in their quest for horticultural knowledge. If you haven't made a contribution, please do so soon. Your tax deductible gift should be to the Colorado Forestry and Horticulture Association and designated The John Swingle Memorial Fund.



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AMERICAN HORTICULTURAL COUNCIL CONGRESS

This meeting of nationally-known horticultural figures promises to be an outstanding event for horticulture in Denver and the surrounding areas. The Congress will open for registration Wednesday morning, October 23 at 10 a.m. at the Albany Hotel in Denver. There will be a separate registration for local gardeners and horticulturists so that they can attend the open sessions of this congress.

The meeting will open officially with a luncheon at 12 noon after which George Kelly will give a talk entitled "An Introduction to Rocky Mountain Horticulture." This will be followed by an afternoon session that should be informative to professional and amateur gardeners alike. The program will include Dr. John Wister, Swarthmore College, who will talk about lilacs, Dr. Robert Schery, National Turf Institute, who will discuss lawns and their problems, Professor W. D. Holly, Colorado State University, who will speak on "Colorado Carnations," and Professor A. M. Binkly, Colorado State University, who will cover some of the aspects of the new National Seed Laboratory being installed on the Colorado State University campus at Fort Collins. Wednesday evening there will be a banquet followed by the film "Colorado Around the Seasons." The day's session will be terminated by a talk on Colorado Evergreens by Robert More. The Thursday morning sessions will be devoted to a business meeting of the A.H.C. Thursday afternoon a sightseeing tour of the foothills area is in store for our visitors and will be culminated with a western supper in the evening.

Friday morning the meeting will be resumed with a very important review of horticultural accomplishments during 1957. This will include amateur, professional, commercial, industrial, and journalistic accomplishments, each to be discussed by an expert in that field.

At lunch Friday, Charles Drage, Extension Horticulturist at Colorado State University, will discuss crops that have made Colorado famous.

Friday afternoon will be devoted to an open discussion meeting on current horticultural problems of A.H.C. members and member organizations.

The annual A.H.C. Awards banquet Friday evening will be highlighted by a talk on "Plains Problems, Horticulturally Speaking" by Dr. Hildreth of the Cheyenne Field Experimental Station. This meeting will bring to a close the activities of the congress.



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Arrangement of the Month

This is a summer mass arrangement of cream and yellow old fashioned roses (Eclipse and Joanna Hill) in a graceful crystal compote container. A needle holder anchored with florists' clay holds Mrs. Moore's stunning creation which was dramatically photographed by Mr. Turnure against a black background.

To "harden" these roses or other flowers, plunge the stems in deep water as soon as they are cut and put them in the refrigerator over night or for six hours.

With summer almost over, roses cut from one's own garden become even more precious. To keep their memory "fresh" preserve a few by gathering the most fragrant varieties in the morning after the dew has dried but before the flowers have fully opened. Pull off the petals and dry them in a cool, well-ventilated, shady spot until the petals are crispy dry. This is the aromatic base with which to start a potpourri and since this is harvest time, gather and cure other fragrant herbs to add to the rose petals. Later, after blending with fixatives and spices, this potpourri packaged in attractive containers makes a delightful gift!

Arrangement by MRS. WILLETT MOORE
Photo by MR. RAY TURNURE

SHADE TREE COMMITTEE CONFERS WITH MAYOR

Mrs. Alexander Barbour, Messrs. J. H. Belknap, Arnold Perreten, and Fred R. Johnson representing the Street and Shade Tree Committee of the Association, discussed shade tree and park problems with Mayor Will F. Nicholson on August 5. Manager of Improvements Batterton and Manager of Parks and Recreation Greim also met with the committee.

The committee congratulated the Mayor for the nicely landscaped 32nd Parkway which makes an impressive approach to and exit from Stapleton Air Field. Appreciation was also expressed for the manner in which the 17th Avenue, York, City Park traffic circle was built with the least sacrifice of park land.

In answer to an inquiry, Mayor Nicholson said there is some question that city streets may legally invade areas designated for parks. He is not sure that this would apply to streets designated as state or U.S. highways which the state is constructing, as for example, U.S. 87 on Colorado Boulevard which is being widened by the State Highway Department. Preliminary plans call for taking a strip off the east side of City Park and the Municipal Golf course.

The Mayor indicated that it is the policy of his administration for the City Planning office, the City Engineers office, and the Parks Department to co-ordinate their activities and keep each other informed of proposed plans for street changes involving widenings, tree removals, and park invasions. He said maps and plans of the Engineering and Planning offices, along these lines, may be made available for review by the citizens tree committee.

He agreed that in the future, cost estimates for future projects involving tree removals will, if possible, include funds for landscaping and tree planting.

There was a discussion of the deterioration of trees in Denver, especially the elms, because of the elm scale. He expressed interest in a suggested plan that trees be sprayed by blocks, each person to pay his proportionate cost based on the number of trees sprayed on his property. The committee suggested that a plan for compulsory spraying, perhaps on a contract basis with the tree companies, be investigated.

The Mayor is deeply interested in keeping Denver's trees in good condition as one of the assets of the city. From personal experience, he agreed it is of little use for one person to spray his trees if his neighbors do nothing. Such a plan might require action by the council and he agreed that it is worthy of study.

The beauty of the city is a concern of all citizens, and the committee members agreed that this discussion with the Mayor and his cabinet was well worth while.

Fred R. Johnson



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LIFTING PLANTS IN AUTUMN FOR WINTER BLOOM

By MICHAEL ULASKI

Plants should be selected and prepared for winter well before frost arrives. Many of the best ones, such as poinsettias, should be brought in even earlier for they are harmed by cool weather. During the first few weeks indoors, much attention must be given to ventilation and syringing. Then, more than at other times, plants are particularly inclined to resent the dry, close house air. Falling leaves and blossoms are signs of unfavorable reaction to such a change. A thorough drenching under a faucet will often check this condition.

REST PERIOD

All plants have growth cycles which include periods of rest. As trees lose their leaves in fall and enter into dormant periods, so do house plants, at some time, rest in greater or lesser degree. All resting plants require less water and warmth than when they are in a period of active growth. None are fed at this time. Plants suitable for indoor culture have, to a degree, different requirements but there are certain basic needs shared by them all such as conditions of light, heat, humidity, moisture, food and rest. A general practice is to pot flowering plants closely, that is, in pots that keep their roots restricted, since a little root cramping tends to promote bloom.

LIGHT

All plants require a light location. Light permits the plant organism to work in transferring certain substances into usable foods. There are of course, a number of foliage plants which need no direct sun, but for most flowering plants, sunshine is a

necessity. Without a maximum of sunlight, geraniums fail to feed and become spindly.

TEMPERATURE

A consistent coolness between 60 and 65 degrees in houses where house plants are grown is better than temperatures of 70 or 75 degrees. Many of our decorative plants can be grown in a really cool window where the average temperature is 50 to 60 degrees. But plants have to be set back away from the glass if the weather is extremely cold outside. When plants develop weak, soft, spindly growth, foliage color is light, and buds blast or fall prematurely, it is very often because they are suffering from too warm an atmosphere.

HUMIDITY

The greatest foe to indoor gardening is lack of humidity. Outdoors the air is moist; indoors, with modern heating, it becomes very dry which sometimes causes parched foliage even if the soil has been moistened. A few make-shifts are helpful when no humidifying devices exist. A bucket or a pan of water set on your stove when you are cooking is good, or if you have a floor furnace you can set a pot or a pan on it. The same can be done if you have radiators in your home. Another way is to have a tray filled with small pebbles and water with your pots resting on the pebbles. This last is probably the best way of increasing humidity. These trays can be made to fit your window sill. Furthermore, cleanliness as well as humidity is increased if plants are sprayed with a bulb syringe or put under a shower or faucet from time to time.

WATER

The question most often asked is how much or how often should house plants be watered. Only a general rule can be offered. When the top soil feels dry to the touch, then is the time to water. Do it thoroughly so that the entire root system is saturated. In a little while, excess moisture will seep out into the saucer which you can easily empty. In some instances you can water your plants by placing them in a water-filled saucer. In this way the moisture is absorbed from the bottom and the foliage will not get wet. Plants that need this type of watering are African violets or cyclamen and there are many others. Rain water is better than faucet water. Room temperature water is also better than cold which may have a retarding effect on growth.

VENTILATION

A close atmosphere is very hard on house plants even when the weather is cold; they require some fresh air. If doors or windows are to be opened for some fresh air, be sure your plants are far enough away from the direct flow of cool air so as not to be in a draft. Air is essential to the roots as well as to the tops of plants. A constant loose condition of the surface soil and hence aeration of the roots is readily obtained by cultivating with a fork.

FOOD

Extra fertilizer is not as important as a good texture of soil and proper potting. Sickly plants are more likely to be suffering from too much heat and water, or from some insect pest than from starvation. Generally speaking, flowering plants require more nutrients than foliage ones, at least up to the time the buds show color. For slow growing plants, a light top dressing of complete ferti-

lizer is good when directions are carefully followed. This does not mean that because a little is good for a plant, a lot will be better. Nor should a resting plant be pushed with any quick acting fertilizer. Thus the summer weary geranium requires coolness and time to rest rather than food.

POTTING SOILS

Although there are almost as many soil formulas as there are types of house plants, it is a matter of experience that plants try to accustom themselves to any soil which is of proper texture or is well-drained.

When potting new rooted plants it is best to pot them up in a plain, good, loamy soil with a little leaf mold or peat moss added, but do not use any fertilizer on the first go around. A good standard mixture for house plants can consist of two parts good garden loam, one part leaf mold, or peat moss, one part sharp sand, and for general use, you can add one pint of bone meal and about two quarts of well-rotted cow manure to each bushel of the mixture.

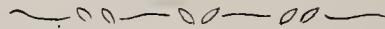
CUTTINGS

In taking slips or cuttings from your old or favorite plants, you should take shoots or tops four to six inches long with firm but not hard stem growth. Fill a pot with sandy soil and insert cuttings about one inch deep around edge. Make holes with a stick and press soil around cuttings very firmly. Shade them from sun and keep only just moist. When growth starts, pot singly in small two inch pots.

A few plants that can be brought into your home from the garden are begonias. Slips can be taken and put in water, but a preferable method is to use moist sand as a rooting medium. If water is used, add a few lumps of charcoal. For fuchsias, cuttings can be taken from old plants in

spring. Fuchsias are not naturally winter bloomers. Winter is normally their resting period, although plants can be potted up and cut back so that it is possible to get cuttings in the spring. Geranium cuttings should be four or five inches long with lower leaves removed and bases cut cleanly across just beneath a joint. Plant firmly in a rather sandy soil in small pots. Keep shaded from direct sun and in a fairly moist condition at about 60 degrees. Coleus can be taken from cuttings but are not A-1 house plants. They like full sunlight, cool temperatures (about 60 degrees), and careful protection from mealy bugs. They should be pinched back to prevent them from becoming too tall and spindly. Asparagus, or springeri as it is sometimes called, is used in pots or in hanging baskets. It can be started from seed very easily. Soak the seed for about 24 hours in warm,

not hot, water. Cover with light sandy soil to a depth of one fourth inch and keep this soil moist and covered with paper until the seed comes up. A good temperature is 65 degrees. Or you can pot up old plants and clean them up a little by cutting out some of the older growth to encourage the new. Petunias are sometimes grown from cuttings. The double ones will make nice plants for spring bloom. Keep them on the dry and cool side through the winter. Then there are hanging baskets which you may want to bring inside. If this is the case, it would be a good idea to clean them up before doing so, for they probably received little care while outside. Pinch back plants that need it, spray for insects, then syringe with water and give a light feeding of fertilizer before the baskets are brought in.



AMERICAN ROSE SOCIETY NEWS

The American Rose Society will hold its 58th annual convention on October 10-12 in the famous Chamberlin Hotel at old Point Comfort, Virginia. October 10 will be the national rose show held on the roof of the Chamberlin Hotel. Entries will compete for two of the top national awards offered by the society each year; the Milton S. Hershey Memorial Trophy and the J. Horace McFarland National Memorial Award.



OF SUN DIALS

“ ‘Tis an old dial dark with many a stain.
In Summer crowned with drifting orchard bloom,
Tricked in the Autumn with the yellow rain,
And white in Winter like a marble tomb.

And round about its gray, time-eaten brow
Lean letters speak—a worn and shattered row:—
‘I am a Shade—a Shadowe too, art thou.
I mark the Time. Saye! Gossip! Dost thou soe?’ ”

L. D. “LEW” HAMMER

FALL FORECAST FOR SPRING FAIR WEATHER AND MORE HYACINTHS

Most flowers, like people, have good sides and bad—profiles, that is. Not so hyacinths. Look at them from above, below, or any side—they are always beautiful. The dozens of florets surrounding the central stalk insure the hyacinth from having a “bad side” like some poor benighted Hollywood actresses.

This “all-around” eye-appeal, plus a mysterious swing of the taste pendulum, probably explains the current “rediscovery” of hyacinths. The wise gardener has found out they deserve “A” for versatility, and this fall many will be planted.

Next spring you’ll see hyacinths blooming beside doorsteps, tucked into borders of spring perennials planted with other Dutch bulbs, in freeform terrace beds, beside little pools, in windowboxes and even in the rock garden. Of course, where traditional architecture demands it, you’ll still see them massed in formal patterned beds, sometimes underplanted with pansies which add to their gay effect.

Being low-growing, hyacinths are especially useful along garden paths or in front of spreading evergreens in foundation plantings. They make a wonderful display in beds topping brick or stone walls, in raised beds fronting picture windows, around trees, under arching shrubs, and almost everywhere you can plant bulbs, because they may be used above or below eye level.

Besides their beauty, hyacinths contribute a delightful scent to the garden, neither heavy nor so faint as to be elusive. The scent of a single potted hyacinth will pervade a whole

room and lightly perfume the adjacent rooms. They are, in fact, among the easiest of Dutch bulbs to force for indoor bloom, either in pots or set in hyacinth glasses which require only water to sustain the roots. When the pot method is used, a single bulb (unlike most other forced bulbs) will make a complete composition in a five-inch pot; or, if you prefer, you may plant five or six of the same variety in a six-inch or larger pot, and have a truly kingly display. Dealers can advise as to which varieties are particularly good for forcing, although almost all varieties will force well.

Outdoors, all Dutch hyacinths are reliably hardy and not very demanding as to soil, as long as it is well drained. Plant the bulbs about 6 to 8 inches apart to allow them to increase, setting the base about 8 inches below the surface of the soil. They do best in full sunlight but will also do well in light shade, particularly if they are in sun a few hours a day; and, because their heavy heads of flowers may be beaten down in exposed positions, they appreciate a little protection from spring winds.

Planting in the fall is a must, and be sure they have enough water throughout autumn to insure good rooting conditions. A “mulch” or cover of leaves or evergreen boughs the first winter will give the bulbs an extra good start. And when, next spring, they burgeon with rosy pink, porcelain blue, icy white or pale yellow clusters of four-petalled bells, you’ll be glad that you too re-discovered hyacinths and put them to new uses in your garden.

GET YOUR HOUSE PLANTS READY FOR WINTER NOW

HELEN MARSH ZEINER

Now is the time to get your house plants in shape for winter, especially if they have been neglected while the family vacationed, or if they themselves have been vacationing in the shade of a shrub through the summer months.

Plants should not have to adjust to abrupt temperature changes, and house plants which have summered outside should be brought in before the nights become cold—otherwise they will drop many of their leaves and become unsightly. If you wish, the transition from outdoor living to indoor living may be made by bringing the plants in at night and setting them out again during the day. Or bring them in to stay, but put them in a cool part of the house for a week or so until they are acclimated to the new conditions.

Plants which have been outdoors may have become hosts to insect pests, so check them carefully. Repeat the check after the plants have been indoors a few days, for some insects such as aphids are insidious and may not develop into a size which you can see until they have been in the house for several days. The old standby nicotine sulfate will take care of most of the insects you are liable to find on your house plants.

It is very probable that plants which have been outside all summer will have grown into awkward shapes or will have been broken by wind or the family pet. Such plants should be pruned into a desirable appearance. Use the same technique that you would use for pruning trees or shrubs, removing branches to the point where they join another branch, or to the point where a leaf arises—never leave

unsightly bare stubs through which infection may enter.

Plants which were left in their pots may have grown so well that they are potbound and need to be repotted. This can easily be checked by slipping the plant out of the pot and examining the roots. When the soil is moist, grasp the stem of the plant between the first two fingers, holding the pot with the rest of the hand. Gently tap the pot on the edge of a table to loosen the soil, and now the plant should slip out readily. If it is potbound, the roots will completely cover the ball of soil. If the roots are white and healthy, simply repot in a size larger pot. If the roots are brown and discolored, trim off the discolored portions, loosen the mass, prune back the top of the plant to make up for reducing the root system, and repot in the same size pot.

If the plants were planted directly in the soil, some major surgery is going to be necessary as it will be impossible to remove the plants from the soil without destroying part of the roots. The top must be cut back drastically to compensate for the loss of roots which are the absorbing organs for the plant.

Take slips of geraniums to use for bedding plants next summer. Those for winter bloom should have been started earlier—taken at this time they will make fine, healthy plants, but are unlikely to bloom before spring. However, slips from such plants as sultana or kalanchoe taken now should give you satisfactory winter blooms. Coleus slipped at this time will make very nice house plants. Oxalis from the border may be taken up and potted, and will soon bloom

again indoors. Speaking of taking plants from the borders, you may wish to experiment with a few annuals. The plant should be dug and potted, and the top cut back almost completely. In a sunny window you may have good luck with a second season of bloom. This is also a good time to sow a little parsley seed in a pot—not only is it useful in the kitchen, its foliage is an attractive addition to the winter window garden.

Plants that have spent the summer

in their usual places in the house should have some attention at this time. Check to see whether any of them need repotting. Some of them will need a bit of pruning to improve their appearance. If they have been somewhat neglected while the outdoor garden took over, they will need fertilizer and a stepped-up watering program.

House plants that receive good care in September should be in fine condition by the time that winter is here and you really need them.



COLORADO GLADIOLUS SHOW

Hundreds of choice gladiolus were displayed for the public in the lobby of the Mile High Center in Denver on the occasion of the Fourth Annual Colorado Gladiolus show August 11. Most of the spikes were grown within 100 miles of Denver but some came from as far away as Lubbock, Texas and Marysville, Kansas. When the judging was over a spike of Tan Glo grown by Don Street of Arvada had emerged as Grand Champion of the show sponsored by the Colorado Gladiolus Society. The Reserve Champion was a spike of the 1957 All America Selection, Carribean, grown by Ray Versaw of Denver.

Other varieties of gladiolus and growers that proved capable of winning major awards at the show included: In the Open Division. (Larger Growers)—*Picardy*, best 500 size, J. E. Thayer, La Porte; *Mother Fischer*, best 400 size, T. F. Smay, Wheat Ridge; *Bit of Heaven*, best 300 size, Sid Baldrige, Greeley; and *Alecia*, best miniature, Ray Versaw. In the Amateur Division—*King David*, best 500 size, Don Street; Tan Glo, best 400 size, Don Street; *Carribean*, best 300 size, Don Street; *Atom*, best miniature, Lee Ashley, Denver. A pink seedling from Lubbock, Texas developed by Don Henderson of that city won the Best Seedling Award. The adaptability of this seedling to the Rocky Mountain Area has not been established up to this time.

Individual exhibitors amassing the most points and being awarded Sweepstakes Medals were Sid Baldrige in the Open Division and Don Street in the Amateur Division. Plans are now under way for a bigger and better show in August 1958.

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SCHULHOFF TREE SERVICE

COMPOST

By KATHRYN KALMBACH

Every garden needs compost. Light sandy soil and heavy clay soil in Colorado are both benefitted by generous additions of compost at frequent intervals. Compost is actually just another name for humus, and what is humus? Humus, simply defined, is partially decayed organic material. To produce humus millions, yes, billions of tiny plant and animal micro-organisms are required. These micro-organisms are constantly at work in the soil, dissolving the organic material and making available the many minerals necessary to plant growth.

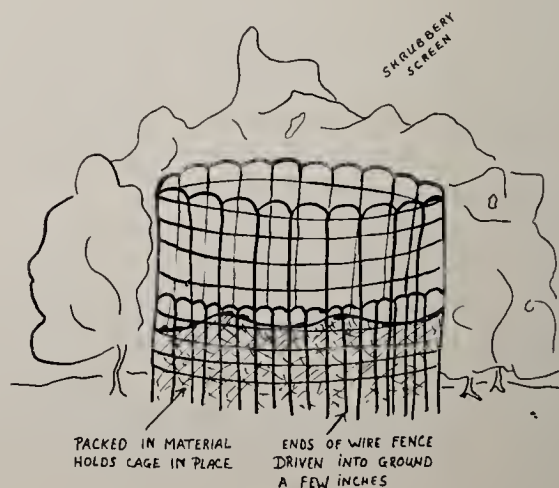
So, every garden needs compost and/or humus, and therefore every garden needs a compost pile or factory where waste plant materials may be converted into humus to replace the nutrients which are constantly being used by our growing plants.

And every garden *can* have a compost pile. On farms and in large garden plots compost making need not be a problem. A suitable place may be set aside and into it may go all waste plant material from the garden proper. After a few directions for starting and maintaining a compost pile in the larger plot, the writer hopes to interest the small garden owner in producing his own compost too.

How to start? If you have not yet had a compost factory, these simple directions may help. Select a spot at the back of the garden, or back of a garage, barn, or other structure, let us say about 12 feet long by 3 to 4 feet wide. Dig out about a foot of soil from this area, piling it close by for use as your pile progresses. Into your shallow pit go clippings from your lawn and garden plots, both vegetable and ornamental. Avoid pil-

ing grass clippings deeply, but by all means add them to other plant materials, if you do not let them fall when mowing. When you have an 8 or 10 inch layer of waste materials in your shallow pit, cover it over with a few inches of soil from your previous digging. If you have a farm you may add some barnyard manure too (you lucky person). In any event, wet down your pile as you build it and at frequent intervals thereafter. The pile also benefits by being turned over from time to time, but if this is not possible, time alone will do the trick. If speed is desired add some of the commercial fertilizers or compost makers along with your soil layers.

When living in Denver, the writer had a successful compost pile on a city lot with close neighbors, and it was not objectionable in any way. This is how we did it: First we fastened a length of wire fencing (about 4 feet in height) together to form a circle about 6 feet in diameter. Then we placed it in the center of a shrub planting so that the surrounding shrubs screened out our compost "cage." And like the larger "pit" previously described, we dug out



some soil inside our "cage," as a start. Into the circle went leaves, some clippings, and cuttings from the flower borders. No woody material, of course. As each layer was added and well packed down, we added some soil, as long as it lasted, and soaked it in. Our layers were shallower than in a large pit, and after we had used all available soil, we still composted merrily. As this pile could not be turned conveniently, we added generous sprinklings of ADCO as we went along. This product, or others of like nature, assures such rapid breakdown of plant materials that one may have compost ready to dig into the garden in the spring from waste materials composted during the previous summer and fall. Always remember to keep a hollow in the center of your pile as you build, to hold water. Keep your pile moist at all times. (We often

piled on extra snow from path shoveling in wintertime.) As this compost cage was close to the next door garden, we were careful to keep out any vegetable matter that might create an odor, such as table scraps, etc., which may be safely added to a larger pile. Each spring by lifting the wire cage up a foot or two above ground level, we could shovel out quantities of well decomposed humus for our flower and shrub borders.

Another gardener used her ash-pit to make compost, shoveling out the humus from below as it became available. So let's all save our waste plant material, and return it to the soil as compost or humus. It will help sandy soil retain water, and will help break down the too close texture of heavy clay soil. Besides conditioning the soil, it will make valuable minerals available to all plants. Valuable? Indispensable!



Indian Summer is related to Fall Color. Europe does not have our beautiful fall colors, because it lacks Indian Summer.

The process is the result of a separation of leaf cells from branch cells, which makes it impossible for the sugar formed in the leaves to be returned to the tree, after a continued warm spell. The latter creates more sugar in the leaves, which cannot be returned to the branch, and results in the brilliant reds and yellows of the leaf.

Even North American grasses may turn vivid colors due to this Indian summer weather; Europe's grasses remain green.—MWP.

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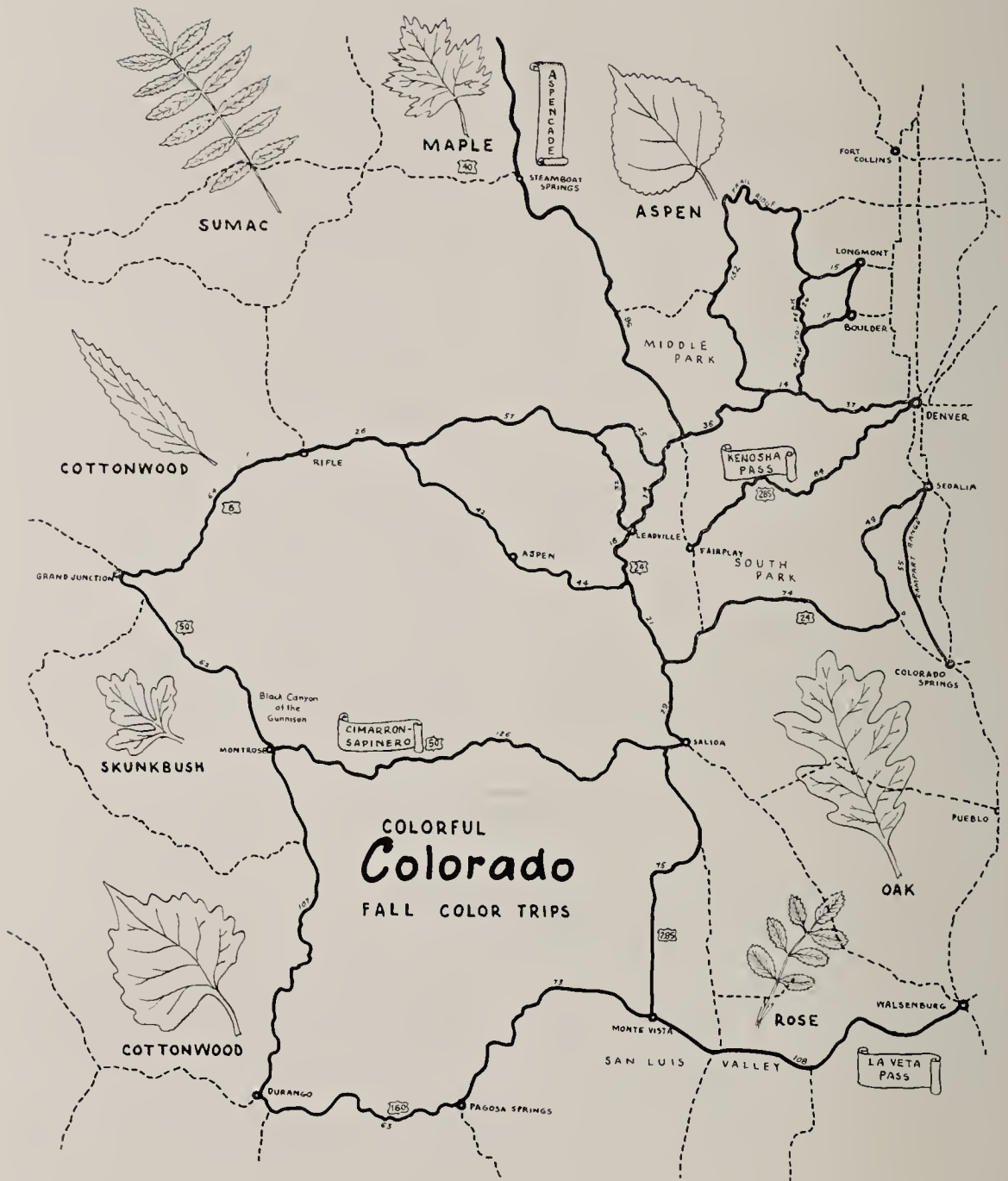
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As autumnal September delicately and gracefully envelopes our majestic state, cooler nights and shorter days cause us to glance toward the mountains. We can see the color nibbling at the "quakies" in the high country. Just a smattering here and there at first, but by mid-September the pace begins to quicken. Entire forests burst forth in a new cloak of yellow as the greens of summer disintegrate before the forces of nature. Slowly, steadily, this yellow mantle advances down the mountain side. Splashed here and there are the reds of the shrub maple and sumac. Truly September is a spectacular month in Colorado, but we have to get out to enjoy it. Try taking one or more of the trips outlined on the map above.



To Autumn

Season of mists and mellow fruitfulness,
 Close bosom-friend of the maturing sun;
 Conspiring with him how to load and bless
 With fruit the vines that round the thatch-eaves run:
 To bend with apples the moss'd cottage trees,
 And fill all fruit with ripeness to the core;
 To swell the gourd, and plump the hazel shells
 With a sweet kernel; to set budding more,
 And still more, later flowers for the bees,
 Until they think warm days will never cease,
 For Summer has o'er-brimm'd their clammy cells.

Who hath not seen thee oft amid thy store?
 Sometimes whoever seeks abroad may find
 Thee sitting careless on a granary floor,
 Thy hair soft-lifted by the winnowing wind;
 Or on a half reap'd furrow sound asleep,
 Drows'd with the fume of poppies, while thy hook
 Spares the next swath and all its twined flowers:
 And sometimes like a gleaner thou dost keep
 Steady thy laden head across a brook;
 Or by a cyder-press, with patient look,
 Thou watchest the last oozing hours by hours.

Where are the songs of Spring? Ay, where are they?
 Think not of them, thou hast thy music too,—
 While barred clouds bloom the soft-dying day,
 And touch the stubble-plains with rosy hue;
 Then in a wailful choir the small gnats mourn
 Among the river salallows, borne aloft
 Or sinking as the light wind lives or dies;
 And full-grown lambs loud bleat from hilly bourn:
 Hedge-cricket sing; and now with treble soft
 The redbreast whistles from a garden-croft;
 And gathering swallows twitter in the skies.

—John Keats





If you want colorful flowers like these in April, May and June, now is the time to get out in the garden and dig.

TULIP (PLANTING) TIME MEANS GARDENING SUCCESS WITHOUT TEARS

When mother nature invented tulip bulbs and Dutchmen, she put together ingredients that have taken all the mystery and pain out of success in the garden.

Practically anybody can succeed with tulips, merely by remembering to put them into the ground anytime between now and the first real hard freeze of winter. Plant 'em deep, shallow, fuss over your soil or let nature take its course; these hardy Dutch bulbs are practically foolproof!

However, now that the ships are coming in from the Netherlands loaded with tons of next spring's floral beauty, it's worth reviewing some of the "little tricks" passed on by seasoned green-thumbers.

One of them is to avoid planting tulips in skinny single rows along a walk or in front of a foundation planting, for tulips in Indian file mean very little, except possibly to Indians. The resulting color mass is not sufficient to give any real punch to the picture. Triple rows (or better still, five or six rows) will give a real display to be proud of. If an informal effect is desired, groups of three, five, seven or a dozen bulbs of one color, set among spring perennials such as candytuft, yellow alyssum, aubrietia and creeping phlox will give telling masses of color to the garden picture.

Keep colors grouped in masses, however small, of pink, yellow, crimson or white, rather than a confusing



The exotic Blue Parrot tulip.

are overlapped by the Early Doubles, whose myriad petals have caused them to be dubbed Peony-flowered tulips, blooming in late April and early May. This is the same period in which the recently developed Triumph and Mendel tulips come into flower, bridging the gap between the Early and the May-flowering types. Through May bloom the Darwin, Cottage and Breeder groups, the Late Double, Parrot and Lily-flowered types, ending the color cavalcade in the latter half of the month.

There is a considerable choice of color in every category—reds, pinks, lavenders, purples (some of them nearly black), yellows, oranges, purest whites, ivories, and bronzy and tawny shades. Some combine colors in a single blossom, such as reds edged with white, white edged with pink or crimson, and the reds edged with yellow.

By choosing a color scheme and adhering to it, and by figuring out a succession of blooming times, you can be assured of a delightful picture throughout tulip time, complementing

mass of "confetti color," all jumbled together. Masses of color are always more effective than dots, because the eye is fatigued by mixtures; masses, on the other hand, allow the eye to relax and enjoy the scene. If the masses are varied in sizes from small to large, the eye of the beholder is charmed by the variety and will linger to appreciate the details of the spectacle.

Now if you really want to roll up your sleeves and go to work, you must remember that the size and shape of blossoms, and the varied stem heights also contribute to the liveliness of the picture. The exotic shapes of the Parrot and Lily-flowered tulips and the graceful small-flowered, short-stemmed Species types will add variety to any garden scene.

If they are carefully chosen, tulips will give continuous bloom in the garden for from six to eight weeks in most areas. Starting with the Species types, which begin to flower from early to mid-April, the next in line are the Single Early tulips, coming in the latter half of April. They



Darwin tulip, Queen of Night.

them with other Dutch bulbs.

Tulips thrive in practically any soil, but like good drainage, especially in winter. They may be planted any time from now until frost locks up the soil. Dig the bed to the depth of a spading-fork tine, planting the bulbs with the base at least ten inches below ground level, spacing them about five to six inches apart. Full sun is recommended but not absolutely essential, especially in warmer climates. It might be added that tulips planted on the protected south and east sides of buildings in full sun get the additional benefit of reflected heat, and this may be important in northern U.S. and Canada. They start growth and come into flower earlier than tulips of the same sort planted the same day in unprotected spots.

Be sure to consider Species tulips, for their unusual forms will delight you and your visitors. The Waterlily or *Kaufmanniana* tulip grows only about eight inches tall; the *Dasystemon*, about six; and the *Acuminata* and *Eichleri* types grow from a foot to sixteen inches in height. The Candystick or Lady tulip (*Clusiana*) rises on a foot tall stem with graceful slender leaves, has alternating, pointed petals of cherry-rose and white, and is a good cutting tulip as well as useful in the garden in many spots.

But whatever tulips you choose, now is the time to plan, and from now until the soil freezes is planting time. Then, when spring bows in, you can sit back, enjoy your private Flower Show, and pretend to be an expert.



IT'S A WET YEAR, BUT . . .

Eastern Colorado lies in the Great Plains region, characterized by a semi-arid climate—sometimes wet, sometimes dry. The only certain things about this climate are its variability and its unpredictability. Everett Peterson, Extension Service economist in Nebraska, recently made this comment:

“A basic difficulty in making permanent adaptations to the peculiar characteristics of Great Plains conditions is our tendency to think of wet periods as normal, drouth periods as abnormal. A record of precipitation in western Nebraska for a 400 year period, 1539-1939, based on a study of tree-ring growth, shows that there were thirteen dry periods totaling 154 years. The longest drouth was 26 years; seven dry spells lasted 5 to 9 years; six lasted for more than 10 years; the average was 13 years. There were twelve wet spells, averaging 21 years in length and totaling 247 years. The longest wet spell, 1631-1667, was 37 years; seven wet periods were more than 20 years long; five were 10 to 19 years in duration. “I don’t like to sound like a ‘dry’ blanket but the recurrence of drouth should not be forgotten. If 1957 and subsequent years have favorable crop growing conditions, reserves of market crops, feed, seed, water, and finances should be rebuilt for insurance against the next drouth. Wet periods, when incomes are relatively high, are also the best times to make the basic adjustments needed in all phases of our economic, social, and political systems in the Plains States if we are to avoid alternate periods of feast and famine. ‘In times of rain, prepare for drouth.’ ”

FOOD PLANTS

By W. F. WILLARD



It is obvious when wandering through a modern market that hither must we all come. A casual glance will reveal the varieties that make up the necessary vitamins and calories of nourishment but it is the sources or families from which these items come that are so interesting.

We lean almost exclusively upon the vegetable kingdom. Indirectly our carnivorous habits are satisfied by animals that depend upon the vegetable kingdom. It is a vicious cycle of existence.

As with people, certain traits and characteristics are found in each plant family. In the struggle for existence, these features (leaves, stems, and roots) may adapt themselves to conditions, but the flowers of each species of the same family will vary little. The business of each leaf is to produce sugar and starch, for plants must have food too. However, our main objective is to name some of the food groups we daily draw upon for subsistence.

Some of these plant families are even poisonous, but in nearly every family some species are poisonous, some inedible (though non-poisonous) while still others produce edible fruits and seeds. Such an example is the buttercup family.

Of over 600 plant families in the world, about half are flowering plants. Only a few of these are used as food sources. One of these is the grass family which includes among its number such well-known cereals

as corn, wheat, oats, rye, barley, sugarcane, millet, rice and sorghum. These are just a few of the many used by domestic animals and which keep the cupboard and refrigerator stocked.

Members of the rose family include many of our common fruits such as apples, pears, medlars, quinces, Juneberries, crabapples, thornapples, cherries, plums, peaches, almonds, nectarines, apricots, raspberries, blackberries, dewberries, and strawberries.

The heath family with some 1200 species gives us huckleberries, blueberries, and cranberries. The bearberry is used as a medicine. Other members of this large family are noted for their flowers which, in the Smokies, are in gorgeous profusion. A spring tour of this region delights visitors with masses of rhododendrons, azaleas, heathers, and trailing arbutus.

The nightshade family contains many poisonous species, but the poison is limited to stem and leaves in most cases. In this group are tomato, eggplant, red and sweet peppers. Some of the poisonous species it would be well to know are henbane, belladonna, stramonium, tobacco, and black nightshade. But the ubiquitous potato is a nightshade tuber. In the west the fruits of black nightshade are used for pies *when ripe*; they are poisonous when green.

The cress family is important for potherbs and salads. Some of the edible species are the leaves of cress,

mustard, cabbage, turnip, kale, brussels sprouts, water cress, sea kale, and kohlrabi. Cauliflower, radish, rutabaga, and horse radish also belong here. All have a peppery and pungent flavor.

The goosefoot or pigweed family includes beet, spinach, swiss chard, and mangel-wurzel. In the composites, we find lettuce, endive, chicory, artichokes, vegetable oyster, or salsify, and aromatics such as chamomile, tansy, and wormwood.

In the pea or legume group the best known are beans and peas commonly grown in American gardens. In other lands are horse beans, lentils, soybeans, cowpeas, carobs, and tamarinds. This family also produces gum arabic, gum senegal, rosewood, logwood, Brazilwood, in addition to indigo, senna, liquorice, and many drugs. Forage crops of this group include clover, vetch, and alfalfa.

Aromatic seeds come from another poisonous group—the parsley family. The leaves are usually poisonous but the seeds are edible of such plants as caraway, dill, fennel, anise, coriander, celery, cumin. Hemlock which put Socrates to death, comes from this family also. In other species the herbage or roots are harmless, edible, and nutritious such as parsley, celery, parsnip, and carrot. Asafoetida (a drug) is the gum of another species in this family. Remember when it was tied around your neck as a disinfectant?

The mint family releases its pungent properties in the leaves. Peppermint, spearmint, greenmint, lavender, pennyroyal, marjoram, thyme, rosemary, sage, catnip, hoarhound, savory, and basil produce a magic in the kitchen and garden.

The gourd family has many poisonous or inedible species but pumpkin, squash, cucumber, musk, and watermelon must not be left out of the edible list.

The lily family contains the onion, leek, and asparagus while gooseberries and currants are closely allied to the syringas and deutzias. The sweet potato belongs to the morning glory family, buckwheat, and rhubarb to the smartweed and the mulberry to the nettles.

From the tropics part of our food is derived via the rue family which is represented in the north by the prickly ash but in the south by oranges, lemons, limes, grapefruits, citrons, shaddocks, kumquats, and tangerines. The ginger family besides the pungent plant itself, produces bananas, arrowroot, and cardamon seeds. The olive belongs to the same family as the ash and lilac, coffee to the madder family, also quinine and ipecac. Cassava from which we get tapioca belongs to the spurge family as does the castor bean and the croton oil plant. Vanilla is an orchid. Three families of plants in the tropics, yam, arum, and palm, are scarcely represented here.



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AUTUMN COLOR AND FALLING LEAVES

By DR. HELEN MARSH ZEINER

September is the month when our Colorado aspen reach their peak of golden glory, and soon many of us will be driving to the mountains to see this beautiful spectacle before the leaves drop and only bare branches remain etched against the sky.

Beautiful and impressive as autumn colors are, the actual fall of leaves from trees is also a spectacular phenomena of the plant world. It is an interesting stage in the lives of trees and other plants living in regions with wide seasonal changes, such as wet and dry seasons, or hot summers and cold winters of the temperate regions. Plants lose great quantities of water through their leaves, but during the growing season this water is replaced by water absorbed through the roots. However in dry seasons or in periods of cold such as we have in our Colorado winters, the plant is not able to absorb water through the roots. The fall of leaves cuts down on the terrific water loss and the plant can withstand the period when there is little or no absorption—all an orderly part of nature's plan.

Long before there is any external evidence that the leaves are about to drop, there are changes going on within the leaf to prepare it for this time. At the base of the leaf stem (petiole) a layer of thin-walled cells arises. This layer of cells forms a weak place called the absciss layer where the petiole will break away from the twig. At the same time, a layer of corky cells develops between the thin-walled cells and the twig, so that when the leaf falls there is no open wound. Upon completion of the absciss layer, the leaf is held to

the twig by the veins or strands of vascular tissue which extend through the absciss layer, and by the outer covering of cells, the epidermis. This is a very precarious support, and a strong gust of wind or rain will bring the leaves tumbling down. The corky layer of cells forms the "leaf scar" which is marked with tiny dots—the bundle scars—where the veins passed into the leaf. These occur in characteristic patterns upon the leaf scar, which in turn always has a characteristic shape, so that these features are commonly used in identifying trees in winter.

Some trees, such as oaks, have no well-developed absciss layer, and the leaves hang on long into the winter.

In the north temperate regions, the fall of leaves is often accompanied by gorgeous color changes. Many people believe these changes to be caused by frost, but this is not altogether true. Frost which happens to occur at the right time may help in the process, but often the colors appear and the leaves drop before there has been any frost at all.

Actually the leaves of trees pass through various stages of development and mature, much as fruit matures. Change in color and leaf fall are merely stages in the maturation of the leaf.

Coloration is due to chemical changes in the maturing leaf. During the summer, leaves are green due to the presence of the pigment chlorophyll in tiny bodies (plastids) in the cells. Also present are yellow pigments, which we do not ordinarily see in the summer because they are masked by the green chlorophyll.

During the summer, chlorophyll which is destroyed is replaced. In the autumn, as the vital activities of the leaves are reduced, chlorophyll which is destroyed is no longer replaced and the yellow colors become evident.

The reds and purples are due to chemical substances (anthocyanins) which are dissolved in the cell sap. These substances may be present in some leaves in varying amounts at all times, or as is more usual, only in spring or autumn. They are formed at times of low temperature when a large supply of sugar is present in the cell sap. During the summer when growth is active, sugars are used rapidly or transformed rapidly and do not accumulate in the leaf. In the

autumn, they do tend to accumulate and the anthocyanins develop. The degree of red or blue depends upon the acidity or alkalinity of the cell sap, and there is no end to the possible shades which might occur.

When the leaf is alive, the cell walls are normally light-colored and translucent. Upon death, they may become brownish. The various combinations of yellow, red, brown, and even black from some dead cells produce an infinite variety of color so that it is no wonder that we find many different colored leaves upon the same tree, or two trees of the same species side by side with quite different coloring. Perhaps the wonder is that two leaves are ever alike!



How good are you at estimating distances? Which two trees are closest together? Which two are farthest apart? For answer turn page upside down.

The second and third trees from the left are closest, and the first and last are farthest apart.

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DENVER'S SUNDIAL

By S. A. IONIDES,
Engineer and Designer

"A paradox, a paradox, a most ingenious paradox!" These words were originally applied by W. S. Gilbert in "The Pirates of Penzance" to another astronomical anomaly. The problem there was whether a boy born on leap year day, February 29, in, say, A. D. 1900, would reach his twenty-first birthday in 1921 or 1984. The paradox in Denver's new sundial is how the shadow manages to point uphill. The illustration on the north side of this dial was taken just before sunset in the middle of June.

A modern sundial, when properly made and installed is a miniature model of our Earth set parallel to its axis and rotating with it, as our Earth rotates on its axis. Our sundials, being on the surface of the Earth are somewhat eccentric to the Earth's axis, about which they rotate,

but this eccentricity of a few thousand miles is so small, compared to the 93,000,000 miles between the Earth and the Sun, that it may be ignored.

The gnomon of a sundial must always be parallel to the polar axis of the Earth and usually the sphere is cut to leave a plane and the type of sundial is named by the direction of the cut. The more common types are the horizontal, the vertical and parallel to a cardinal point of the compass, the polar, and the equatorial.

Denver's new sundial is equatorial. This type with the plane parallel to the equator is of ancient origin, but is rarely used today. R. Newton and Margaret I. Mayall in their book "Sundials" do not give any photograph of one, though they write freely of them. Armillary sundials, which are hollow spheres cut away,



The south side of the Sundial.



The north side of the Sundial.

are along the same line and have their hours shown around the inside of the equator and are much more common.

When Mr. George E. Cranmer, Manager of Improvements and Parks in Denver, decided on a sundial for the centerpiece of the large sandstone platform in Denver's new Mountain View Park, he drew his inspiration from an ancient small Chinese sundial, which he had seen in San Francisco, and called on me to design one of that type.

The dial had to be large to be of value to its location. The slab from which it was made measures six inches in thickness and seven feet in diameter. The outer circle of the dial is five feet, eight inches in diameter. The gnomon, which also serves as a support, is a three-inch stainless steel shaft.

The slab is of sandstone from the same quarry near Lyons, Colorado, as that from which the sandstone for the platform had been quarried. The markings were transferred from the drawing to a composition rubber covering, through which the lines were cut and sandblasted in the shops of the Erickson Memorial Company of Denver.

The arrangement follows the Chinese pattern and like it has the hours shown all the way around the clock, even though at the latitude of Denver the limits for the sun's shadow are 4:00 A. M. and 8:00 P. M.

The meridian for the Mountain Standard Time (7 hours west of Greenwich lies along Navajo Street in the City of Denver) and the sundial is only 17 seconds east of this meridian, so no correction for longitude was made and the reading on the upper edge of the shadow gives local apparent time. An analemma to give the correction for equation of time has been designed but not yet built.

This will carry the combined corrections for equation of time and longitude and will enable anyone, without even the slightest knowledge of astronomy, to set his watch to Mountain Standard Time with substantial accuracy from the reading of the shadow and the correction shown by the curve of the analemma.

The equatorial dial *may* have been created by the Chinese, as to them is given the credit of setting a large ring in the ground parallel to the equator to show the changes of the seasons. With this arrangement the sun shines on the southern side from the beginning of the year up to March 21, then on the northern side till September 23, and then back to the southern for the balance of the year. When the Romans saw these rings, they considered them too large to be used on fingers, so they named them bracelets, or armillae, and that name has persisted with armillary sundials and spheres.

The same program is followed naturally with equatorial sundials and they must be graduated on both faces to be of service throughout the year. Equatorial sundials have the marked advantage of having all the hour angles of equal size and so the same dial can be used irrespective of latitude and merely requires setting at the proper inclination and direction to give correct readings. Most other types give reasonably correct readings only within a small range of latitude.

In conformity with tradition and to convey the seasonal features to visitors, this sundial has a motto inscription, which tells of the shift from side to side. On the north side it reads:

"In summer on this side, and—"
and on the south:

"In winter here I mark the hours."

To return to the "most ingenious paradox", the explanation is simple.

The shadow does point uphill, but only because the gnomon also points uphill and at a steeper angle, its inclination to the horizontal being equal to the latitude of its location, $39^{\circ} 43'$, while the rise of the shadow is but 20° as measured by the hour angle.

Every reader will, of course, have spotted the fallacy in the paradox mentioned at the beginning. The example given was purely fictional. It

could not have occurred. The year 1900 A. D. though divisible by four, was not a leap year, as the Gregorian Calendar rule calls for the omission of the century years, except when the number of centuries is divisible by four, and nineteen is not so divisible. In 1900 A. D., there was no February 29!

(Reprinted from *Popular Astronomy*, Vol. XXIX, No. 10, December, 1941).



NEW BOOK TELLS HOW TO GROW CHRISTMAS TREES

by ELMER W. SHAW, Editor

Rocky Mountain Forest and Range Experiment Station
Fort Collins, Colorado

"Christmas Trees for Pleasure and Profit" is the title of a new book published by Rutgers University Press, New Brunswick, New Jersey. It is well illustrated, contains 215 pages, and sells for \$3.75.

The authors, Dr. A. G. Chapman and R. D. Wray, present, in their simple, easy-to-read style a complete guide for Christmas tree growers. Much of the book deals with plantation management in the Midwest and the East, but many of the practices described can also be applied in the Rocky Mountain region.

All 20 chapters are packed with helpful information. Some of the topics covered are: A brief history of the business, selecting planting site and species, planting techniques, care of the young plantation, shearing, harvesting, grading, marketing, profits, and taxes.

As a warning to neophytes who hope to get rich quick by growing Christmas trees, the authors also point out the pitfalls and uncertainties of the highly competitive business.

Included in the closing sections of the book are the names of several agencies who can give professional help to the beginner, a comprehensive list of 30 published references on the subject, and a 7-page index.

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AN ALPINE GARDEN

By ROBERT L. WOERNER, *Director Denver Botanical Gardens, Inc.*

One of the greatest assets of the Denver Botanic Gardens is the close proximity of the towering Rockies. By traveling westward from Denver we can observe a wide range of vegetation from prairie plants to the flowers of the alpine. The increasing altitude produces a succession of bloom that cannot be rivaled. As the wildflowers of the prairie fade, we may journey to the foothills, the mountains, and finally to the areas above timberline to witness a continual unfolding of the beauties of nature.

With a program of planned altitude units in mind, a survey of available areas was begun. For an alpine unit, it was only logical that the natural area established by the U. S. Forest Service on Mount Goliath be considered. This site is less than 55 miles from Denver on Colorado highway 103, the road to the summit of Mount Evans. The natural area was defined a number of years ago for the protection of the windswept timberline trees to be found at that point along the highway. Originally the area included 200 acres and the road passed through a part of it, but in 1956 the area was redefined to encompass 160 acres away from the road and all other works of man in keeping with the definition of a natural area.

On inspection of this site, it was found that a trail above the natural area over the rocky summit of Mount

Goliath would be the most desirable. Two well located turnouts of parking areas on the Mount Evans road will facilitate use of this proposed trail. The lower turnout is located just below timberline at the lower end of the proposed trail, just a bit over 3 miles from the junction of highways 5 and 103 at Echo Lake. The upper parking area is approximately 2 miles farther up on the road. With a parking spot at each end of the trail it will be possible for groups traveling in more than one car to "double up" and leave one car at the lower end of the trail as a "retriever" so that they need only travel the area in a downward direction.

For those with less time or energy, modifications in the trail will be planned so that it will be possible to cover only a portion of it or to travel part way out from the upper end and return to the upper parking space. There will be no strenuous climbing to be done, nor precarious paths to be traversed.

The summer display of wildflowers to be seen along this trail is fabulous. The yellow of the alpine avens, the drabas, the cinquefoils, and others is an endless sea, punctuated by the heads of bistorts, paintbrushes, and an occasional scratchy thistle. The reds and purples of kings crown, purple pincushion, wallflower, and low clovers blend with the blue of Jacobs ladder, sky pilot, mertensia, harebell, and penstemon. Many of the diminutive

tive alpine could be easily overlooked, but close inspection will reveal alpine forget-me-not, buttercups, fairy saxifrage, rock primrose, and even ferns. Alpine lily, chickweed, sandwort, onion, daisies, and louseworts are to be found throughout the area.

In addition to this wonderful natural flower garden, this alpine site offers a remarkable view from the summit of Mount Goliath in all directions. The trail will be planned to weave in and out through the outcroppings of rock giving everchanging vistas of distant mountains. The rock formations themselves are of

great interest, and they will be tied in with the botanical information which will be available to visitors to the area. The workings of the diminutive mammals of the area will be pointed out along our trail, particularly at the lower end where the protection of timberline may even provide a glimpse of a deer.

Such are the prospects for our alpine garden. Plans are now being worked up for the development of this area in cooperation with the Arapahoe National Forest. We have every hope that an instructive "nature" trail can be opened to the public on Mount Goliath next spring.



RESULTS OF THE 1957 SYMPOSIUM AMERICAN IRIS SOCIETY

We recently received a copy of the 1957 iris popularity poll taken among the members of the American Iris Society. We are pleased to see that the Denver Botanic Gardens are currently growing 41 of the 100 most popular varieties in the Iris Rainbow Garden in City Park. Another six of those on the list had been previously grown, but they have been discarded for better varieties due to limitations of space.

Below are the top 30 varieties from the symposium. Those marked with an asterisk are included in the collection at the botanic gardens.

- | | |
|--------------------|--------------------|
| 1. Truly Yours* | 16. Lady Mohr* |
| 2. Happy Birthday | 17. Inca Chief |
| 3. Mary Randall* | 18. New Snow* |
| 4. Palomino* | 19. Blue Rhythm* |
| 5. Blue Sapphire* | 20. Frances Craig* |
| 6. First Violet | 21. Char Maize |
| 7. Argus Pheasant* | 22. Black Hills |
| 8. Ola Kala* | 23. Swan Ballet |
| 9. Sable Night | 24. Desert Song* |
| 10. Pierre Menard* | 25. Rehobeth |
| 11. Violet Harmony | 26. Blue Shimmer* |
| 12. Pinnacle* | 27. Snow Flurry* |
| 13. Elmohr* | 28. Starshine* |
| 14. Limelight | 29. Zantha |
| 15. Chivalry* | 30. Top Flight* |

The botanic gardens are indebted to the members of Region Twenty of the American Iris Society for the several hundred varieties of dwarf, intermediate, and tall bearded iris including some 20 new varieties added this year.

THOMAS CONRAD PORTER (1822-1901)

Another in Our Series on Colorado Botanical Pioneers

As co-author with John Merle Coulter, Thomas Conrad Porter brought together the first "synopsis" of the plants of Colorado (1874) which led to the revised manuals of first Coulter alone, then of Coulter and his resident co-author, Aven Nelson, later of Rydberg, and just as inexorably, of the future manuals of the native flora of Colorado and the central Rocky Mountains. Porter, then, first defined the outlines of what today we call "our knowledge of Colorado plant life," and therefore is one of the important pioneers in the field of early western botany.

He was the eldest son born of John and Maria (Boucher) Porter on January 22, 1822 in Alexandria, Huntingdon County, Pennsylvania. His botanizing career began at the early age of 18 near Tussey's Mountain in the Alleghenies after graduating from Lafayette College. Here in the Alleghenies he collected specimens that are called the Porter Herbarium and are now part of the collections of the Academy of Natural Sciences in Philadelphia. Although for awhile botany was subordinate to his main vocation, that of a minister, he continued botanizing after his ordination at the German Reformed Classis at Lebanon, Pennsylvania in 1848. A year later he found himself teaching chemistry, zoology, and botany at Marshall College, Mercersburg, where he published his first botanical paper in 1850 entitled "List of Plants Collected by Mr. Thaddeus A. Culbertson on an Expedition to the Mauvais Terres and Upper Missouri in 1850."

Here at Marshall College, Porter was professor of natural sciences and chemistry for seventeen years. In 1866 he returned to his alma mater,

Lafayette College, as professor of botany and zoology and there he remained until he retired from "his chair of natural history" in 1897.

In addition to his botanical and religious vocations (he preached on Sunday at the Third Street Reformed Church at Easton), Porter was an avid student of Germanic literature and left valued translations and critiques in that field. When Longfellow's poem *Hiawatha* was first published, Porter contended that the inspiration for the poem sprang from an old Finnish epic, the *Kalevala*. After much controversy, this was later confirmed by literary historians.

But it was during his professorship at Lafayette College that Porter made his contribution to Colorado's botanical history. From 1869 to 1874, Porter was with Ferdinand Vandeveer Hayden in the central Rocky Mountains as a member of the U. S. Geological and Geographical Survey of the Territories. These explorations can be traced through the "Synopsis of the Flora of Colorado" which rests largely on the field work of John Merle Coulter of Hayden's staff with notes and collections supplied by several others. Porter assembled the notes and descriptions, sought assistance from specialists for particular plant groups and gave the "Synopsis" its final form. Most of his own collecting was done on the plains around Greeley and Denver or around Colorado City and the adjacent Front Range canyons. He also made at least one trip through Ute Pass to South Park at least as far as the divide west of the salt works of the early seventies.

Through William A. Bell, vice president of the Denver and Rio Grande Railroad, Porter met General William J. Palmer. From the fact

that Porter collected what became the type of *Melica porteri* at Glen Eyrie, (see Green Thumb June, P. 180), he probably visited Palmer at his estate at the mouth of Queens Canyon. Porter was the first collector to detect that composite of more southern distribution in Colorado. He also botanized Monument Park and Pikes Peak. Of the other plants first described from Porter's collections, one of the best known is *Aster porteri*. This comely aster was described by Porter as *Aster ericoides* var. *strictus* in the "Synopsis" (p. 59) based in part upon the Porter collection from the "foothills west of Denver;" it was renamed for him as a distinct species by Asa Gray in 1881. Other species

described as new by Porter in "Synopsis" are *Erigeron coulteri* and *Erigeron glandulosum*; *Astragalus brandegei*; *Astragalus scopulorum* taken in South Park by Porter and the strikingly beautiful *Penstemon brandegei*.

In the field Professor is said to have possessed a remarkable knowledge of plant habitats and environments. Over and over again he is known to have remarked when visiting a locality for the first time, that it was a "likely" place for certain species to grow. This "guess" usually proved true within a short time.

Condensed from *Rocky Mountain Naturalists* by Joseph Ewan.—M.B.B.



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Seasonal Suggestions

September is a harvest month with dances, country fairs, and other celebrations which have been the vogue at this time of the year for centuries. Enjoy yourself but set aside a little time for your garden. There

are still a few chores to be done.

This is the start of a clean up period that will last until the last leaves of autumn fall—a good time to start thinking about making a compost pile. For complete instructions see Mrs. Kalmbach's article on page 284. Composting will save you a trip or two to the dump and it will give you valuable and much needed humus for next spring.

Pay close heed to daily weather forecasts so that you won't get caught with tender garden plants still outdoors. Such things as tuberous begonias will bloom for another month indoors if you take them in before frost. Also cuttings from geraniums and like plants should be taken in before they are nipped. It's possible too, to extend the bloom of some of the annuals in your garden by covering them with plastic sheets or newspapers during early light frosts. Speaking of frost, bulbs like dahlias, cannas, and gladiolus should be dug for storage as soon as the tops are killed by frost. Treat them in the following manner: Dahlias—dig, clean up, cut tops back to about 6 inches, store upside down in sand, peat moss, or vermiculite in a cool (40-50 degrees) dry location. Cannas—cut tops back to about 6 inches, dig with clumps of earth, and store in a semi-cool (50-60 degrees) location. Gladiolus—dig, remove tops and old shriveled corms, dry several days outdoors, dust for thrips with D.D.T. and store in a cool place (40 degrees) in ventilated trays or mesh bags.

Spring bulbs such as tulips, narcissus, and hyacinths are on the market and can be planted now. Remember that this is Colorado so plant the bulbs deeply, that is, 10 to 12 inches for tulips, 5 to 7 inches for narcissus, 6 to 8 inches for hyacinths, and 4 to 6 inches for crocus. Spacing is not too important, especially when these spring beauties are planted in natural drifts.

Some thought should be given now to trimming trees and shrubs to prevent storm breakage. Sharp V crotches in fast growing trees can be eliminated by pruning or if they are important to the beauty of the tree they can be strengthened by cables. If the trees are large, a professional treeman should be called for the work to be done properly. Shrubs that are tall and gangly can be tied up or some of the canes removed. A final shearing of hedges should be done at this time.

Last but not least make some notes of changes you would like to make in your garden, plants that have done well for you, and those that have not. Writing these items down now while they are fresh in your mind will make your gardening easier next year. If you have problems that have you stymied, visit the library here at Horticulture House this fall and winter. You can surely find the answer in one of our many excellent books on all phases of gardening.

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The Green Thumb

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OCT.-NOV., 1957

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Vol. 14

Oct.-Nov., 1957

No. 9

Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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WELCOME TO THE AMERICAN HORTICULTURAL COUNCIL CONGRESS

The Colorado Forestry and Horticultural Association welcomes the members of A.H.C. to their annual meeting here in Denver October 23-25 at the Albany Hotel.

It is a privilege for us here in the Rocky Mountains to be host to this outstanding national group, for we feel this meeting will focus the eyes of the horticultural world on Denver and the Rocky Mountain region and will provide us with the opportunity of showing them our different but fascinating area.

The Editorial Board and the Association wishes the visiting members of A.H.C. a most enjoyable and profitable visit in Colorado.

PATRICK J. GALLAVAN.....Editor.....MRS. HELEN FOWLER.....Librarian

MELANIE BROWN, Asst. Editor and Librarian

MR. AND MRS. EDWARD J. VINCENT, Custodians

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AN INVITATION TO THE ANNUAL AMERICAN HORTICULTURAL COUNCIL CONGRESS

The American Horticultural Council cordially invites the members of the Colorado Forestry and Horticulture Association to attend its 12th Congress to be held at the Albany Hotel in Denver October 23-25, 1957. The program of this Congress featuring well-known horticulturists is designed to interest the amateur and professional alike. The executive committee of the A.H.C. has approved a special registration fee of \$3.00 for local gardeners, horticulturists, and other interested persons. This will enable you to attend the open sessions of the congress. The Colorado Forestry and Horticulture Association, the Colorado Nurserymen's Association and the Denver Botanical Gardens, Inc., co-hosts and sponsors of this Congress, second this invitation and hope that you will attend.

The American Horticultural Council is a national coordinating body designed to bring together representatives of all interests engaged in, or concerned with, the welfare and progress of horticulture for their mutual benefit; and to speak and act on their behalf in accordance with their wishes.

Its membership embraces those active in scientific, commercial, amateur, and professional fields. The Council has as its objective: to provide means and machinery for bringing about a truly "United Horticulture—for a more adequate representation of horticulture in national and international affairs, a more general appreciation of the value of plants to humanity, and a more beautiful America."

WEDNESDAY, OCTOBER 23rd

- 8:00 a.m. Garden Writers Breakfast.
 10:00 a.m.-12:00 a.m. Registration
 10:00 a.m.-12:00 a.m. Board of Directors meeting
 12:00 a.m.-1:30 p.m. Scheduled luncheon—George Kelly, author of *Rocky Mountain Is Different* will speak on "An Introduction to Rocky Mountain Horticulture."
 1:30 p.m.-4:30 p.m. Afternoon session:
 "Lilacs"—Dr. John C. Wister, Swarthmore College.
 "Lawns"—Dr. Robert Schery, Better Lawns & Turf Institute.
 "Colorado Carnations"—Prof. W. D. Holly, Colorado State University.
 "National Seed Laboratory"—Prof. A. M. Binkley.
 6:00 p.m.-7:45 p.m. Banquet and film on Colorado.
 8:00 p.m.-9:00 p.m. Colorado Evergreens—Robert More, author of "Colorado Evergreens".

THURSDAY, OCTOBER 24th

- 8:00 a.m. Breakfast on own.
 9:00 a.m.-12:00 a.m. President's report; annual plenary session; reports of Standing Committees.
 12:00 a.m.-1:30 p.m. Colorado luncheon, Speaker: Charles Drage, Extension Horticulturist from C. S. U. on Horticultural and Agricultural Products of Colorado.
 1:30 p.m.-7:30 p.m. Tour of foothills including Red Rocks Theatre, Central City, and Western Supper.
 7:30 p.m. Garden Writers meeting, Albany Hotel—Other sectional meetings to be announced.

FRIDAY, OCTOBER 25th

- 8:00 a.m. Breakfast on own.
 9:00 a.m.-12:00 a.m.
 1. Amateur Horticultural Accomplishments—Mrs. Hugh H. C. Weed.
 2. Professional Horticultural Accomplishments—Robert Woerner.

3. Commercial Horticultural Accomplishments—Norvell Gillespie.

4. International Horticultural Accomplishments—Russ Seibert.

5. Horticultural Explorations.

6. Horticultural Accomplishments Through Journalism—Margaret Herbst.

12:00-1:30 p.m. Lunch on own.

1:30-4:00 p.m. Open discussion period — Moderator: Dr. Albert Irving.

4:00-4:30 p.m. Report of Nominating Committee.

4:30-5:00 p.m. Meeting of Board of Directors, meetings of committees.

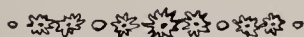
6:30 p.m. Annual banquet and awards—Speakers: Dr. A. C. Hildreth, Superintendent of the Cheyenne Horticultural Experiment Station, on "Plains Problems Horticulturally Speaking."

SATURDAY, OCTOBER 26th
(SCHEDULE OPTIONAL)

Sectional breakfasts AABGA, Garden Writers.

10:00 a.m.-12:30 p.m. Tour of Botanical Garden (AABGA).

10:00 a.m.-12:30 p.m. Tour of Outstanding Denver Gardens (GWA).



OVERALL UNITED FUNDS NATIONAL STORY

The months of October and November mark the annual United Funds campaigns all over the nation to collect enough funds to take care of the voluntary health, welfare, youth, and child care agencies of each community.

United Funds is a method for easier and more efficient giving but at the same time provides each one of us with the opportunity to help our neighbor in times of distress. It also provides a check on various agencies so that services will not be duplicated in the community. All agencies must also be tax exempt.

United Funds in most communities now includes not only local agencies but national organizations as well. Through this one drive alone, time and therefore money is saved in each company and industry since the story of all agencies is presented at one time.

In the mechanized world in which we live communities are ever increasing in size and families become more and more isolated from their neighbors. But at the same time when trouble and disaster strike, people still feel it as severely as they did in the days of our grandfathers when communities were small and every resident was known by the townspeople. Today more than ever people in trouble need a helping hand and a friend in this big impersonal civilization. Although now united in one money raising campaign, still each agency works in cooperation with other agencies to provide the help to people who need it and to represent each of us in times of stress. Today it is impossible for us to know who needs help or how best to give that help but in today's world we send qualified representatives to do the job for us. Each citizen is asked to take part in the campaign through participation and by contributing in order to "Help the United Way."

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MEMO

Calendar of Events

Oct. 23-25—American Horticultural Council Congress, Albany Hotel.

Nov. 4—"Fun with Flowers" meets the first Monday of each month at 10:00 a.m., 1420 Kenton Street, Aurora.

Nov. 6—Botany Club meets the first Wednesday of each month, 7:30 p.m. Horticulture House.

Nov. 9-10—Dried Flower Show sponsored by the Home Garden Club, 12 noon to 4 p.m., Denver Museum of Natural History, City Park, Main Lobby. The theme of the show is Magazine Titles.

Nov. 13—Organic Garden Club meets the second Wednesday of each month, 8:00 p.m. at Horticulture House.

Nov. 14—Denver Rose Society meets the second Thursday of each month in Room 186, City and County Bldg. at 8:00 p.m.

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Arrangement of the Month

Lovely apple-green bells of Ireland gracefully rise above a cluster of giant, pink zinnias that have been placed in a pewter and copper container. Here is an arrangement for a buffet that brings the beauty and mellowness of a fall garden indoors. The soft pink of the zinnias blends beautifully with the warm copper and pewter tones of the container while the fresh green of the bells of Ireland give a touch of cool contrast. Both these flowers hold up well after cutting and are easy flowers with which to work.

As an art originating in the Far East and for many years displayed in this country largely in museums and galleries, flower arranging finally spread to homes where its beauty can be incorporated into daily living.

John Taylor Arms, in the foreword to *Flower Arrangement* by F. F. Rockwell and Esther C. Grayson says: "Every man and woman who learns to arrange flowers beautifully makes his or her environment more attractive and becomes one more enlisted in the army of workers striving to bring to the mass of mankind an appreciation of finer things. When such appreciation is common rather than rare, then will we have taken a long step towards a higher civilization."

—Arrangement by Mrs. B. K. Sweeney

—Photo by Mr. Ray Turnure



A planting of petunias at Pan-American Seeds with snow-sprinkled Mt. Lamborn in the background.

HIGH COUNTRY PETUNIAS

By MARIE L. HOFER

A new horticultural industry was begun in western Colorado ten years ago when Plant Breeder Charles Weddle arrived in Paonia with a dream and less than a half teaspoonful of seeds. But these were seeds destined to open an entire new field in floriculture. The first hybrid all-double petunia seed had been mysteriously produced until that time, only by the Japanese. While employed by the W. Atlee Burpee Company, Mr. Weddle spent years of research unraveling the Japanese secret and arrived at the answer almost simultaneously with a Canadian breeder. A few years later, because his former employer was no longer interested in their development, Mr. Weddle brought his precious seeds and his great faith in their future to a new home where the high dry climate, the

limited rainfall and the soil structure promised to offer ideal growing conditions for the production of hybrid petunia seed. With two former classmates, Mr. Weddle formed Pan-American Seeds Incorporated and hybrid petunia seed production began in Paonia.

Hybrid seed is the product of a cross made between two parents, each of which has outstanding, desirable qualities which have been fixed by inbreeding. The first generation seed of this cross, the F_1 hybrid, will produce plants that are stronger, more vigorous, and more uniform than either of the parents. These hybrids will grow faster and stronger and produce more flowers.

Pan-American Seeds produce both single and double hybrid petunias and seed is obtained by hand pollination.



Girls hand pollinating a field of Pan-American hybrid petunias.



Small field of hybrid petunias in bloom.

This is a colossal task. For one pound of hybrid petunia seed more than 45,000 hand pollinations are necessary and that many seed capsules must then be picked by hand. High school girls and women must be trained for this work and during the summer months as many as 30 or 40 girls and women are employed in the greenhouses and fields making F_1 hybrid petunia seed, in addition to about 20 men who perform the usual farming operations of hoeing, irrigating, cultivating etc.

Hand pollinated seed is very expensive and some of the rare varieties sell for \$7,000.00 per pound wholesale. The company sells exclusively to seed dealers and wholesalers and accepts no retail orders. But even to wholesalers very little seed is sold by the pound. Most orders are for ounces or fractions thereof. Petunia seed is very small—averaging about 250,000 seeds to the ounce.

Breeding work to stabilize and maintain the present varieties and to create new ones is constant and un-

interrupted at Pan-American. Mr. Weddle, president of the company is also in charge of the breeding work. Some varieties represent ten years of constant selection and testing. Since 1952 All-America Selections has presented six awards to Pan-American petunias for "meritorious record and high average scoring in the official North America test-gardens." In addition to the other employees, from six to ten people staff the breeding department where the most up-to-date scientific methods are used to obtain dependable and outstanding varieties of hybrid petunias.

Seven greenhouses, numerous covered sheds, and twenty acres of land are devoted to hybrid petunia seed production by Pan-American Seeds. During July and August and into September the fields are a riot of color. In the beautiful valley of the North Fork of the Gunnison River, encircled by the timeless mountains, these fields of bright colorful petunias lend their dainty charm to contrast with the evergreen slopes of nearby Mt. Lamborn.





Mr. Burrell's daughter in a field of hybrid zinnias.

ZINNIAS BY THE ACRE

By LILLIE B. FLEISCHER

"Oo-oo-oo-h! See those colorful zinnias!" chorused a carload of touring garden clubbers.

"Now that plot intrigues me. It resembles a Persian rug," stated Lillie B.

"Wonder how large an acreage that plot covers?" questioned Pearl. "Oh, about an acre, I should judge." Ella surmised.

"Well, if all of them are as pretty as this plot," B.B.'s voice trailed as she was lost in contemplation.

"There are more plots as you journey to Rocky Ford," Alda began. "I saw them last week when we visited there. Others are planted to single colors."

"Did you know it was the official city flower of Rocky Ford?" questioned Gail.

"Well what do you know? Pueblo isn't the only city to have an official

city flower then, is it?" laughed Myrtle.

"It's also the state flower for Indiana, I believe;" Etta chimed in.

"Wonder why it is called the zinnia? Anyone know?" asked B.B.

"Oh, it's probably named after the discoverer, a plant scientist, or something—as our own *Tritoma* was," replied Gail.

"Why don't we find out more about the flower?" asked Pearl.

"By reading?" asked Lillie B.

"Why not tour the garden plots? You know me, I like to take trips!" said Myrtle.

"Well, why not? Whom do we contact? Oh, here's a sign erected by Burrell Seed Co. of Rocky Ford. Now we see why the zinnia is the Rocky Ford City flower. They really couldn't help themselves," quipped Alda.

"Suppose our president arranges for a tour at the proper time," exclaimed Ella. "She seems to trip down here more often than some of the rest of us do," she ended.

So it came about that the president and secretary visited the Rocky Ford Floral Co.'s, annual flower show, and then contacted a member of the Burrell Seed Co. who advised them that August 10th or thereabouts would be the proper time to view the zinnias at the height of bloom.

This appointment set the stage for visiting the mountains to view the early flower displays, particularly when an enthusiastic Dorothea announced: "You should see the wonderful wild flowers that crowd the hillsides. They're out of this world! The flowers were never more beautiful nor as bountiful!"

"When did you see them?" Ruby asked.

"Just last week," replied Dorothea, "when we made the trip to Rosita to watch the movie stars play in 'Saddle the Wind'."



Bill Burrell and the author.



Airlane Garden Club members visit the Johnson Farm

"Oh, yes, I remember seeing the story in our daily paper," Mildred commented. "I'd about forgotten it though."

"In that case, the trip is a must. Can't miss seeing movie stars perform, can we?" Vera chuckled. "I'm all for it. When do we start?"

"Ella, will you phone Linnie and Lillian, and Lora?" questioned Gail.

Thus the first of many tours was planned. A newspaper item would be a call to adventure. Sometimes it proved disappointing, for the reporter failed to identify the flowers correctly and the garden clubbers then had to consult books and magazines for the proper identification. Another time the cars stalled on the hillside—suffering from the high altitude it was surmised—but each time the touring members gained new knowledge, and prepared themselves for the next safari. They learned that the zinnia was named for a professor of medicine at Gottingen, Germany, by the name of Johann Gottfried Zinn, (1727-1750). That the flower is also known as Youth-And-Old-Age, that there are annual, perennial, and subshrubby plants, mostly Mexican, but ranging from Texas and even Colo-

rado to Chile, probably 16 to 20 species. From the experience of growing them our members knew that the plants grow to 12 or 18 inches in height and are covered with double flowers 2 inches or more across from July until frost. Some had experienced insect or fungi damage on their plants and they were prepared to ask questions from a zinnia authority, one of the Burrells.

Affable young Bill Burrell led them to a plot of royal purple dahlia-flowered zinnias. It was a pretty sight to see the water flowing in the furrowed rows between the blossoms. A little imagination could supply the windmills of Holland and the resultant catalogue picture.

He cheerfully answered questions, stating that the zinnia was originally a single-flowered, magenta flower, but cross breeding by seedsmen had produced these multi-petaled flowers of today. He ventured the information that they grew the flowers for seed for the Northrup-King, the Ferry, and the Vaughn seed companies.

He seemed temporarily stymied by Ingrid's question: "How many pounds of seed does this plot produce?" but almost immediately answered: "About two hundred pounds per acre and a half."

He laughingly shrugged off her question: "How many packages does that fill?" she persisted: "How many pounds of seed are needed to plant an acre?"

"About 1 pound for $\frac{3}{4}$ acre."

"How many acres did you grow last year?"

"Sixty acres. Two years ago we grew 200 acres. Competition is keener now."

"How are they pollinated?"

"By insects and wind." Butterflies were seen everywhere. He stated that bumblebees were the greatest helpers, though few had been seen during the

last five years due to the use of DDT sprays. He startled all with the statement that they used to wash the bees feet to insure clean pollination.

"Wash the feet of a bumblebee" questioned Gail, "but how can you do that? That seems an impossible feat!"

"We erect a cheese cloth box over the plants, then grasp a bumble bee across its back and clean its feet. . . ." demonstrating the action.

Some one would be sure to ask: "Don't they sting you?"

"Sometimes. I never ran as fast as when I was trying to evade one."

"I should think so," answered Gail. "I made a movie of my son dodging about in the Azalea Gardens, then when I found out why he dodged, we went back to make a movie. Some size to that bee! I don't think I'd ever attempt to grasp it to wash its feet."

He elaborated on the insect helpers saying: "You can't see them with the naked eye, for they fly before you as you advance. I've used binoculars to watch them as I go through the rows. Very interesting!"

The Gus Johnsons' $2\frac{1}{4}$ acres were visited to see Enchantress, a lovely California giant type which we tried to photograph. Remarking on the healthy foliage he replied: "We place sulphur on the ground between the rows."

"On the GROUND?" Ella questioned.

"Yes," he replied, "that's where it comes from."

"How often do you do that?" she continued.

"Just as the plant begins to bloom. Sulphur keeps the soil sweet."

"I suppose mildew is caused by sprinkling," commented Lillie B. "It does look as though your system of watering is far superior to our way of using the sprinkler."

They next visited the Joe Bregar

acre of mixed California giants. This was the Persian rug on closer inspection! A very satisfying experience. While others went forward to admire the various colors Lillie B spied a small watermelon and immediately wished she had one to eat. It was then they learned that young Bill's grandfather had started his business venture by raising canteloup seed and had originated several varieties. He had come to Colorado for his health and became so ill he was put off the train at Rocky Ford. The climate proved beneficial and he created the seed company that bears his name, and which supplies a goodly portion of seed to large seed houses. Vaughn's received 5000 pounds of zinnia seed last year from the Burrells.

The group visited the Dennis farm to view the maroon-hued Grenadier California Giant zinnia.

Questioned on what fertilizer was the best, Bill replied: "Milorganite. It has sulphur in it. In fact it is one of the few that has sulphur in it." He stated that watering of the plot would end September 1st to fill out the seed pods which would finish the blooming.

It was now past the dinner hour and hunger drove further questions from the minds of the knowledge seeking gardeners, who ventured a final question:

"Do you speak to women's organizations?"

He smiled as he said: "Nope. I'm afraid of them!" Thus ended one of the most instructive tours of the season for the members of Airplane Garden Club before Fair time. They still had one in the offing—the home of a Chipita Park member, Selma Walker.

Every city and town in the United States should have a "master plan" for planting and beautification, according to John Fraser, III, Huntsville, Alabama, newly-elected president, American Association of Nurserymen.

"Many city and regional planning officials have adopted plans for future aesthetic development," Mr. Fraser said, "but this should be extended all the way along, for beauty not only pays off economically but is its own reward to everyone, everywhere."

DID YOU KNOW?

A sage in India, whose name was Iaia, was so rapt in things not of this earth that when his only son fell ill and died, he didn't know what to do. After some days, conceiving that it would be well to remove the body he inclosed it in the largest pumpkin he could find and carried it to the foot of a mountain. Visiting the region later he opened the pumpkin and was startled when a volley of fish was discharged from the vegetable, also a few whales. Although these creatures fell to the ground, so much water ran from the pumpkin that they were able to wriggle away in the current. The wise one reported this phenomenon to the people on the plains whereupon four brothers hurried to the hills to catch the fish for food. Iaia pursued lest they harm the pumpkin, but they reached it first and lifted it, but seeing him, dropped it breaking it in a half dozen places. From each of these fissures flowed a river that swelled and swelled till the earth was covered with water, and most of it never dried away, but is what we call the ocean. Another version of the universal deluge legend.—*From Myths and Legends of Flowers, Trees, Fruits and Plants by Charles M. Skinner.*

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AIR CONDITIONING COLORADO CARNATIONS FOR HOT WEATHER

By HARRY LAZIER, *Executive Secretary Colorado Flower Growers Association*

In the past, Colorado Carnations have always been a crop having a tough problem on the continuity of sales because of the fact that while the size and quality of the flowers were excellent in wintertime, in the summer, hot dry days brought these remarkable cool-growing plants to a fairly low ebb as far as flower size and stem length were concerned.

Colorado Carnations have been one of the staple floral contributions of the Rocky Mountain Region to the horticultural world for nine months of every year ever since the turn of the century. At that time, "old country" carnation growers transplanted to the "wild and woolly West" discovered that this favorite flower of Europe would do well in the Mile High City. An embryonic floral

industry grew up which today boasts over 4½ million square feet of glass and an annual Colorado Carnation production of 50 million blooms whose hallmark is long life, great size, and a dazzling array of colors.

Recent dramatic developments in the research field have now proved that Colorado greenhouses can be cooled during the summertime efficiently and at low cost. The method used is evaporative cooling. This system of cooling makes use of the physical principle that water takes on heat when it is transformed from a liquid to a gaseous state. It is the same principle which makes your finger cool when you wet it and put it up in the breeze.

The first attempts to provide evaporative cooling for Colorado Carna-

tion greenhouses were unsuccessful. High efficiency, high velocity "squirrel cage" blowers were used to push evaporatively cooled and humidified air into greenhouses. However, the velocity of the air currents, and the temperature differentials from one end of the greenhouse to the other depending upon the blower location, made this particular approach to evaporative cooling unusable.

To overcome these difficulties, a new system was developed in which one side of a greenhouse was lined with aspen pads over which water was circulated. On the other side, a series of low velocity, low pressure fans exhausted the hot air from the greenhouse. This created a negative pressure within the greenhouse and caused a gentle current of dry air from outside the greenhouse to go through the aspen pads on the other side. As this air humidified and the water changed into a gaseous state, it took on heat and greenhouse temperatures were reduced from 15° to 20°, depending upon the temperature of the day and the outside relative humidity. This is the system used today. It lowers interior greenhouse temperatures of from 70° to 80° on even the hottest days—a temperature range which is well within the optimum growing conditions for quality carnations.

The effect of this type of greenhouse cooling has been remarkable on the Colorado Carnation industry. Colorado growers have spent over a

million dollars on this type of air-conditioning equipment in the past 12 months, and carnation plants which used to be thrown out at the beginning of summer and the benches replanted for a fall crop are now carried through the summer months in full production.

The quality of summer Colorado Carnations has been superb. Colorado Carnations have demonstrated excellent keeping characteristics, good color, sturdy stems, and large blooms. The increase in summer humidity has been good for the plants, and bushy, vigorous plants have increased fall and winter carnation production. In addition, there has been a lessening in the need for watering the carnation plants so that there has been a great reduction in this kind of labor to accompany the other increases in quality.

The days of creating a market for Colorado Carnations on the basis of a nine months' season now seem to be gone forever. The crop presently enjoys all of the advantages of a full, round-the-year production schedule. As a result, business for Colorado Flower Growers Association has been tremendously improved. At the present time, an unprecedented demand for Colorado Carnations has been evidenced all summer and continues without letup. As a result, it is to be believed that Colorado's best known floral crop will do an even bigger job in the future of portraying the wonders of Colorado's unequalled year-round climate.



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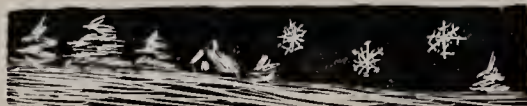
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Mighty Leaf

A brazen pageant passed up the street
And all the people rushed to see it;
There was bugle blare, and rolling thrums,
Of throbbing horns and the booming drums,
Emblazoned heralds, the fanfare's greet,
Resplendent robes, and the measured beat
And mighty roar of a thousand feet
Like victor's march to his conquer-seat.
The pageant passed; and a dead leaf fell
Slowly and slowly and clear and well
A missive 'scaped from a cosmic cell
A tone unloosed from a primal bell
That bore on its way a wonder-spell—
A wonder-spell of mysteries
Contained in patient leaves of trees
In fungus spoor and spider's brood
And all the living multitude;
A wonder-spell of pictures fine
In ev'ry land where sun doth shine
And long distil the tonic wine
In weaving palm and stolid pine,—
Of dreaming heights
Where sky doth call
Of fragrant night
When rain doth fall
Of winding roads
Where wind doth blow
And shaded lodes
Where stream doth flow;
A wonder-spell of painless grief
Within each falling silent leaf
That holds all knowledge in its sheaf,—
For if we knew if we knew
Why it came and why it grew
How the living spirit drew
From sky and earth its channels through,
We should know we should know
Why things are so
The meanings of the hidden years
And all the music of the spheres.
A pageant proud rolled its barren swell
While a mighty leaf to the greensward fell.

—Liberty Hyde Bailey



OUR BOTANIC GARDEN — 1957

By ROBERT WOERNER, *Director*

In the five and one-half years since the Botanical Gardens Foundation was organized, almost a thousand species and varieties of plants have been planted at the botanic garden in City Park. Some of the species are the only representative of a genus (ginkgo, dawnredwood, etc.) while other species and varieties are part of notable collections. The following list of plants gives all of the genera growing in the botanic garden and the number of species and varieties in each genus. The varieties of daylilies and chrysanthemums have not been named, so they have not been tabulated.

One of the more important collections is the Glenmore Pinetum, a group of cone-bearing trees assembled through the efforts of Mr. Robert E. More, a trustee of the garden. The pinetum includes plantings of juniper, pine, fir, douglasfir, spruce, deciduous conifers, and some of the conifers usually considered tender in this climate. The large juniper group includes 14 species. The species *scopulorum* leads the rest with 37 varieties. Continued additions to this section of the pinetum will make it one of the outstanding juniper plantings in the country. The junipers share the rolling knoll south of the museum building with the douglasfirs. Other conifers are planted northeast of the museum and in the protected area immediately north of the building. The 16 species of pine are to the northeast. Just north of the pines are the deciduous conifers. The firs, yews, cedar-of-Lebanon, and other tender sorts are planted in the protected north area. The remaining spruce section of the pinetum is located across the drive west of the junipers.

The rose garden provides the fore-

ground for the mountain view from the main entrance to the museum. It is under the sponsorship of the Denver Rose Society. Through their efforts thousands of rose plants were obtained from the rose growers. Additional individual gifts by members of the society have contributed a great deal toward making this the fine garden that it is today. The 3700 plants include 6 grandifloras, 86 hybrid teas, and 53 floribundas. The colorful display put on by these plants from June until frost is admired by thousands.

Region Twenty of the American Iris Society sponsors the fine iris "Rainbow Garden." Here curved beds in concentric circles produce a rainbow of iris colors in May and June. The 99 tall bearded varieties include 41 of the 100 most popular iris in this year's poll. Special beds contain many species and varieties of dwarf, pumila, intermediate, Siberian, and spuria iris. At the rear of the iris garden a planting of 800 Cheyenne mums adds fall color to the area along with bloom from the screen planting of buddleias.

The Milton Keegan Lilac Lane leads westward from the iris garden. This collection of 48 varieties of lilacs was the gift of the late Milton J. Keegan, one of the original trustees of the garden. In beds beneath the lilacs are many varieties of daylilies, the gift of Mr. Lemoine Bechtold.

At the west end of Lilac Lane is the DeBoer crabapple collection, donated by Mr. S. R. DeBoer, Denver landscape architect and creator of the master plan for the botanic garden. Mr. DeBoer has assembled 28 species and varieties of flowering crabapples in this area. Plans call for the addi-

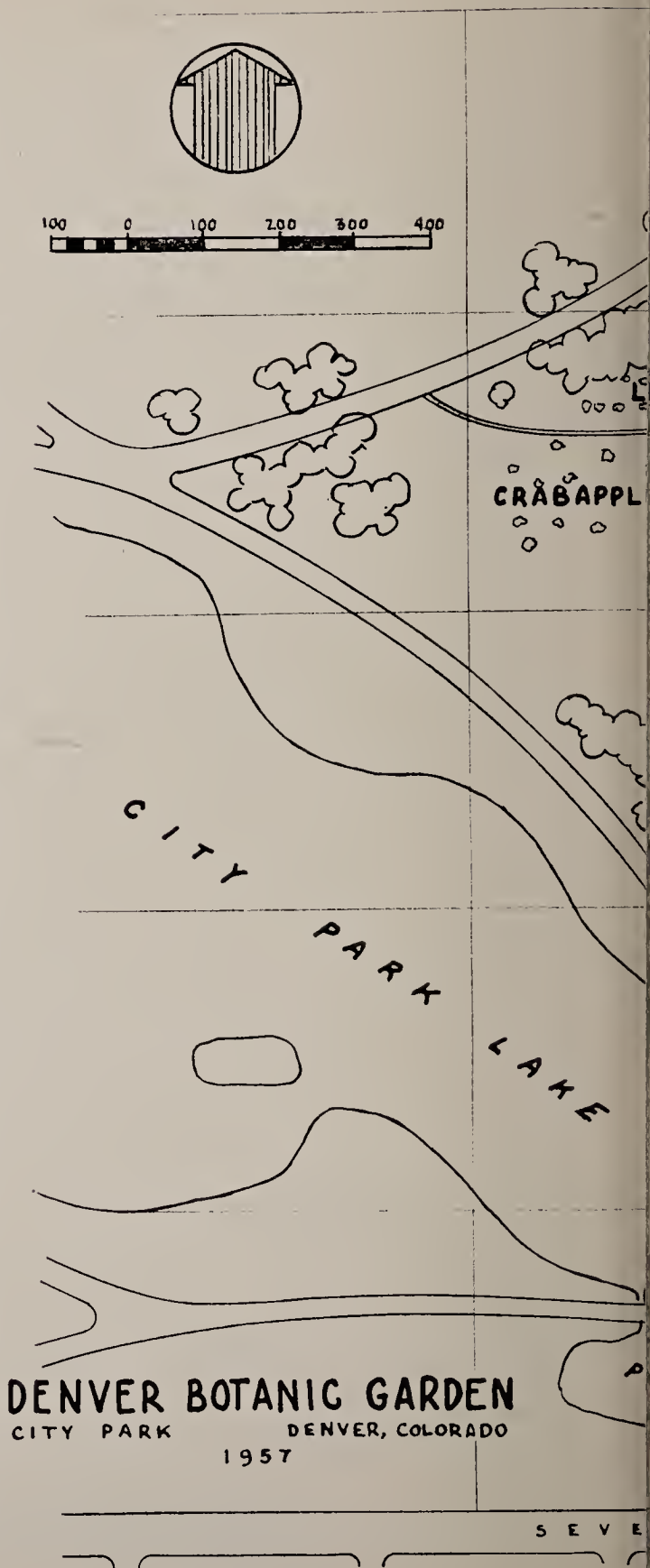
tion of many new varieties to this collection next spring.

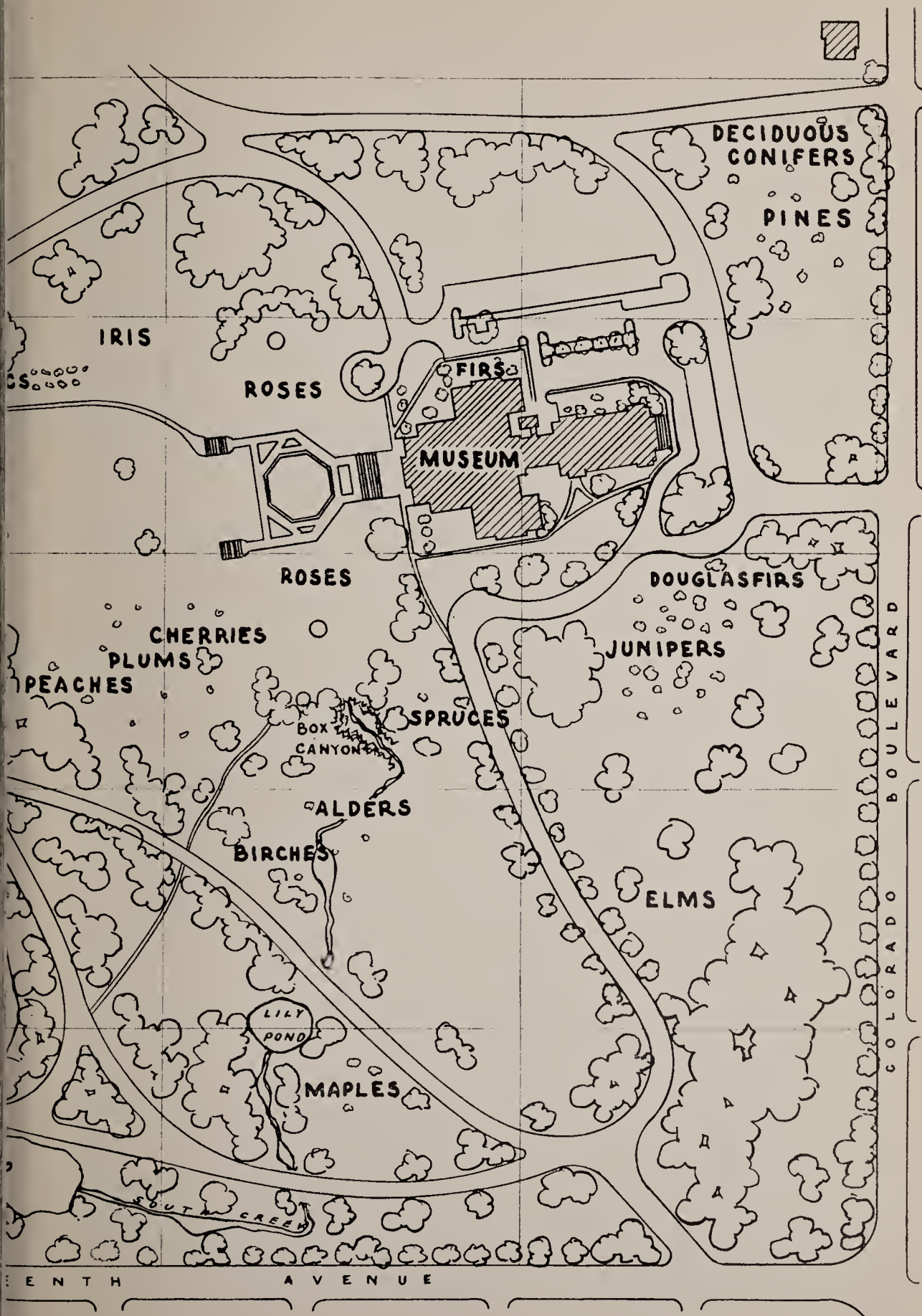
Southwest of the rose garden lies the new *Prunus* collection, planted in 1956 and 1957 through the generosity of the Men's Garden Clubs of Colorado. This group includes 36 species and varieties of flowering cherries, plums, apricots, and peaches. Of special interest are the four hardiest species of Japanese flowering cherries which are being tried in Denver for the first time.

At the south end of the rose garden is the box canyon. The placing of the huge rocks in this canyon was made possible through the help of the Gates Rubber Company. Planting of native shrubs and trees in the canyon and upon its slopes will be continued this fall. Along the stream leading from the canyon are the beginning plantings of the birch and alder groups, donated by Mr. W. H. Ferguson, another trustee of the garden.

Other plant groups in the garden include a large planting of four kinds of ferns, donated by Mrs. Helen Fowler, and over four thousand tulips in forty varieties, donated by the Denver Dry Goods Company and Mrs. John Evans. A short distance north of the museum building there is a group of hawthorns and lilacs which will be moved to permanent places in the gardens soon. Not included in the formal collections are the hundreds of fine trees and shrubs growing in City Park. Some of the more noteworthy of these are enumerated on the following list.

Although the garden is young in years and much remains to be done before the master plan will be complete, there is much to be seen and enjoyed at City Park. Every Rocky Mountain gardener should pay a visit to the botanic garden to see the many fine plant groups which have been outlined above.





PLANTS OF THE BOTANIC GARDEN AT CITY PARK

SEPTEMBER 1957

Common Name	Scientific Name	Species and Varieties
Alder	Alnus	5
Arborvitae	Thuja	5
Baldcypress	Taxodium	1
Bigtree	Sequoiadendron	1
Birch	Betula	2
Buddleia	Buddleia	3
Cedar	Cedrus	1
Cherry	Prunus	21
Chrysanthemum	Chrysanthemum	--
Crabapple	Malus	28
Dawnredwood	Metasequoia	1
Daylily	Hemerocallis	--
Douglasfir	Pseudotsuga	9
Elm	Ulmus	5
Falsecypress	Chamaecyparis	2
Fern	(Various)	4
Fir	Abies	6
Ginkgo	Ginkgo	1
Goldenlarch	Pseudolarix	1
Hawthorn	Crataegus	12
Iris	Iris	300
Juniper	Juniperus	87
Larch	Larix	2
Lilacs	Syringa	48
Maple	Acer	6
Oak	Quercus	5
Peach	Prunus	7
Pine	Pinus	23
Plum	Prunus	6
Rose	Rosa	145
Spruce	Picea	9
Tulip	Tulipa	40
Yew	Taxus	6
Zelkova	Zelkova	1

(Other trees of interest in City Park)

Ash	Fraxinus	Russian olive	Eleagnus
Buckeye	Aesculus	Smoketree	Cotinus
Catalpa	Catalpa	Sumac	Rhus
Coffeetree	Gymnocladus	Sycamore	Platanus
Cottonwood	Populus	Tuliptree	Liriodendron
Horsechestnut	Aesculus	Walnut	Juglans
Pagoda tree	Sophora	Willow	Salix

THE NURSERY INDUSTRY IN COLORADO

By SCOTT WILMORE, W. W. Wilmore Nursery

About the turn of the century there were only one or two established nurseries in the entire state of Colorado. With the exception of these two, most of the nursery sales were made to private citizens on a "Johnny Appleseed" basis or through tree or "brush" peddlers.

Recognition should be given right here to a former mayor of Denver, Robert Speer, for his foresight in the beautiful plantings he installed, particularly along Speer Boulevard, as well as for his encouragement to beautify various city parks. Mr. Speer certainly visualized the future of Denver through his love for plants and trees, else Denver never would have developed into the beautiful city it is today. At that time most of the purchases made by the City and County of Denver were from established nurseries outside of Colorado. Any local nursery or nurseries were so small that they were of little value as a source of supply because of the quantities needed in Mayor Speer's recommendations.

In the past 50 to 60 years, changes have been made slowly but surely, and improvements have moved with the times, until today the nursery industry is highly respected and runs into millions of dollars in annual sales.

Some 35 to 40 years ago (when the nursery industry started locally) it was discovered that the mile high altitude of Colorado could grow superior nursery stock surpassed by no other state in the union. While our growing season is short compared with most other states, our intense sun and high altitude along with cool nights and irrigation tend to put a better

root system on nursery stock that is unequalled elsewhere.

Then a few years back several of the nurseries in our state started feeling their way along with container-grown stock. Gradually this has been increased to the point where, at a guess, between 30% and 50% of the annual sales in Colorado are definitely container stock. It is my feeling that within the next five to eight years 90% of the nursery stock used in our state will be this type of merchandise. This would exclude, however, stock larger than can properly be placed in containers. The container-stock I have reference to is the normal run of average-sized shrubs, roses, perennials, and evergreens. Logically, the larger evergreens and big shade trees as well as large shrubs, will still be in demand and have to be either on a bare root or balled and burlapped basis.

What brought about this change? There are many reasons. First and foremost is the ease of transplanting container-grown stock with practically no chance of a mortality loss. Also, in shrubs and roses especially, plants can be chosen while in bloom, either in late spring or through the entire summer so that the buyer can see exactly what the specimen looks like—the color of its flowers, its size, its productiveness, and other individual qualities of these items. Color schemes can be worked out better by placing the plants side by side before ordering them, thereby making sure they are the proper choice instead of having to imagine what they look like from catalogue description. Furthermore, the nursery business in the past has been more or less seasonal.

Now it can be stretched out to practically twelve months of the year for safely planting with container-grown material—even in the hottest days of July and August. This type of stock has thus revolutionized the nursery industry and is getting to be more popular every year.

This year especially, we have had customers say that they will never buy another bare root rose while container stock is available. This attitude also applies to other container-grown

merchandise various growers are handling. True, such stock is a little more expensive because of the extra costs of container, soil, and fertilizer, and particularly because of the costs of watering and upkeep. However, in the final analysis, getting the desired effect immediately is worth a few more dollars to most buyers and container-grown stock is a "life saver" to nurseries during a late and wet spring such as we had this year in Colorado.

COLORADO'S WATERMELON PARADISE

By CHAS. M. DRAGE

Extension Horticulturist in Charge: Watermelon Seed Certification

The 1957 harvest of Colorado Certified watermelon seed will plant more than 100,000 acres, nearly one-fourth the total acreage of melons grown for market in the United States. This spring growers in Pueblo, Otero, Prowers, Crowley, Baca, and Bent counties planted more than 1,000 acres for seed production.

Watermelon growing in the Arkansas Valley is not new but the growing of Certified seed was not started until 1951. In 1877, George W. Swink, (Senator Swink) planted $\frac{1}{4}$ acre near Rocky Ford. By 1890 melon production was a commercial enterprise that grew until more than 1,000 acres were planted for market melons to make Colorado famous as a melon growing state. New production areas opened but because of distance to market, Colorado growers could not compete; the industry declined to less than 400 acres and Colorado was no longer a principal melon growing state.

But Colorado growers had "know-how", melon land, and vision. With the help of the Extension Service and with the approval of the State Board of Agriculture, the Certified seed production program started in 1951 with 3 growers and 39 acres. Now there are 80 growers and 1,013 acres. The seed is grown under rigid standards and inspections to insure purity and freedom of disease. The 1957 crop is worth more than $\frac{1}{4}$ million dollars. It is "really-rush" to thresh, wash, dry, process and deliver seed to the southern states for their planting which starts in December.

This program is an example of changing marketing methods to make the growing of an adapted crop profitable to the area. A fundamental principle in industry is followed in that the grower develops and exercises a guiding influence over the distribution of his product. Florida starts shipping melons in March and the chances are even-up that the seed to produce the crop was harvested in Colorado just a few months before.

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PROGRESS or RETROGRESSION?

By ED WALLACE

Thirty-five new babies were delivered to proud parents in the Denver area today. At the same time, fifty home-seeking, job-seeking people moved into the area. This happens every day—rain or shine. In the time it takes to get this from the printer to you, you will have 1600 new neighbors.

A population explosion is taking place in Denver. All indications are that Metropolitan Denver will hit the one-million mark by 1965. Well over 64% of American cities that have hit the 500,000 mark in one census sail on past one-million by the time the next census rolls around 10 years later.

Whether or not we reach this one-million mark, the growth of Denver has been spectacular. Our people have learned that our mineral resources are secondary to our human resources. Because Denver has had a good foundation and its people have been good, we have had a magnificent growth since World War II, largely attributable to Fitzsimons Army Hospital and Lowry Airfield Base. Because the servicemen liked Denver and its people, they came back with their families and friends. Many small businesses moved into Denver and the U. S. discovered Denver, making it the second Washington, D. C. We began to have industrial development, as well as distribution centers. We have over 400 new or enlarged industries in this area. This new activity means that we have had an increase in population of at least 2500 people per month since World War II with 1500 each month requiring homes and jobs. But homes and jobs aren't enough to keep Denver growing. People don't work all the time. With the rise in production, labor

time has decreased. Time for play as well as for work has become a reality for the average man. Work has long been the dominant factor of life—leisure and recreation a more or less luxurious after-thought. Yet leisure and recreation in their broadest sense are fundamentally necessary factors, especially in this industrial age.

The city today stands between man and his source of recreation — consumes his free time traveling to and from areas which provide the means of restoring the vitality dissipated in his work. Recreation, work, and home life are fundamentally closely interdependent units, rather than entities to be segregated by wastefully attenuated transportation facilities. Denver has tried to maintain this unity of recreation, work and home, by linking them with parkways and locating park and recreation areas within easy reach of everyone. Denver's parkways, if put end-to-end, would provide a divided-lane highway from Englewood to Castle Rock. One can have a Sunday picnic in a different park each week for more than a year. Their total acreage would build a town of 15,000 homes. In addition, Denver has over 13,000 acres of mountain park land, about 8,500 of which are developed for picnicking, fishing, golf, and winter sports.

But let's pause at this point and give credit where credit is due. The Denver Mountain Park system which we enjoy had its inception 45 years ago when the people of this city authorized a mill levy for the acquisition and maintenance of a chain of mountain parks. In five years' time, with a half-million dollars, these same people had acquired eleven tracts of land totaling 3,236 acres and built over 50 miles of strictly mountain

highways, six stone and timber shelter houses, wall houses, a wild game preserve, a lodge with cafe, an automobile camp, and trout ponds for stocking Bear Creek with 200,000 trout annually. Quite a challenge to our current program.

Our city parks system was inaugurated in 1868 when Francis M. Case and Fred J. Ebert donated 2.44 acres to the City for a park now known as Curtis Park, bounded by Curtis, Arapahoe, 31st and 32nd Streets. Eleven years later, Horace Fuller donated Fuller Park. Two years later the State sold 320 acres to the City for \$56,000 for City Park. Then in rather quick succession came Lincoln, Montclair, Jefferson, Washington (first purchase 7 blocks), Congress, Platt, Dunham, Chaffee and Highland—all before 1900.

In 1906 Highland Park District bonded for \$230,000 to purchase McDonough, Barnum, Berkeley, Rocky Mountain Lake, and Sloan and Cooper Lakes Parks, and Argo playground.

Fifty years ago this year South Denver Park District was bonded for \$213,000.00 to purchase Washington Park Addition, Dailey Park, Broadway, Highland, Sunken Gardens, Jerome Park, Neighborhood House playgrounds and Marion and Downing Street Parkways.

Fifty years ago Denver had already provided its 200,000 people with most of the large parks we enjoy today; City, Washington, Cheesman, Berkeley, Mountain View, Rocky Mountain Lake and Sloan's Lake, totaling 1141 acres, nearly half the present acreage of all city parks. At that time, Denver had just twice as many acres of large parks per capita as we can boast today. The lack of adequate park areas is very evident during the summer months. It is estimated that City Park has over two million visitors a year. These are not all Denver

people, of course. The Denver Convention and Visitors' Bureau estimates that the state will have had 3.7 million visitors by year's end. 70% or 2.6 million of these people also visited Denver for an average stay of 2½ days. Another large contributor to our park use is the Metropolitan Area. Most of the smaller suburban cities do not have enough population to support a large park. Consequently many of these suburbanites use the Denver parks for week-end relaxation. The three counties immediately surrounding Denver have a combined population of 218,000, with 1080 acres of local parks and playgrounds to serve them. Jefferson County has 320 acres of local park and playground for its 83,300 people. This is a low per capita rate (3.8 acres per thousand) but this may be due largely to the fact that Jefferson, with Douglas County has over 256,000 acres of regional recreation and forest land. Over 90% of this land consists of the Pike, Arapaho and Roosevelt National Forests. Another 5% contains the Denver Mountain Parks system. Adams and Arapahoe Counties, with populations of 58,600 and 72,700 have 308 and 454 acres of local parks respectively which is a little better per capita rate than Denver.

The problem of handling park and recreation needs for the tourists and metropolitan population is being worked out jointly by a representative committee under the leadership of the Inter-County Regional Planning Commission. In a recent publication on "Regional Parks and Reservations," they have recommended 15 regional park sites totaling 15,600 acres. These are well distributed in all 5 counties, along the Platte River, Cherry Creek, and various lakes.

The situation is also being attacked on the state level. An Administrative

Board has recently been appointed and plans and policies are being formulated.

Concurrently, Denver's 1955 two-million dollar bond issue program is well into the construction stage. Practically all of our existing parks are being restored and modernized. Sixteen new sites have been acquired. Twenty-two new areas have been graded and landscaped. Recreation facilities include three new lakes, two neighborhood swimming pools, eight lighted concrete tennis courts, nine new holes of golf, three lighted ball-fields, three new playgrounds, numerous shelter houses, picnic facilities, game areas, etc.

Negotiations are nearly complete for acquiring a large tract of Fort Logan land along Bear Creek near Sheridan Boulevard. Most of the land has been acquired for another large park along Cherry Creek between Holly and Monaco. Thirty-second Avenue Parkway, complete

with automatic water system and landscaping, has been installed this year. Monaco Parkway has been extended from 26th to 38th Avenues. First Avenue Parkway has been constructed and an automatic water system installed. Landscaping will be done in 1958.

Though two million dollars doesn't go as far as it did in 1912 when the East Denver Park District was bonded \$2,700,000 for acquisition of the Civic Center, Denver is seeing more new park development than it has in a long time. But with the Denver area growing at the rate of 30,000 people every year, completion of the Bond program in '58 will provide little more than 50% of the park and recreation needs suggested as standard for a city of more than 500,000. It is our hope that the people of Denver will make it possible for the Parks and Recreation Department to carry out a five million dollar acquisition and development plan over the next eight years.

Some pines keep their cones closed for years and artificial heat must be employed to make them open and give up their seed, says the American Association of Nurserymen.

PLANT SALE! Mrs. Jon Schoo, 2650 Dexter (DE 3-1249) is having a plant sale of perennials, annuals, and house plants during the last 2 weeks of October. Anyone needing fillers for their out-door garden or indoor one will find these are exceptionally healthy specimens that Mrs. Schoo has grown organically. Call her for an appointment today (DE 3-1249) if you want beautiful, vigorous plants. The sale is for the benefit of Horticulture House.

P.S. Mrs. Schoo's particular hobby is African violets.



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FOR YOUR THANKSGIVING DINNER TABLE

By M. WALTER PESMAN

Coralberry has never failed me. Invariably, when Thanksgiving comes around, and I am looking for an appropriate dinner table decoration—here is a luscious crop of red berries, toning in with the cranberry sauce. Generally there are enough of the round, neat leaves left on the bush to furnish just the right kind of green. The branches have a graceful curve which make the table decoration easy and attractive.

If this shrub had no other virtues except that of providing a Thanksgiving bouquet, it would deserve a place in the average garden, but it serves many purposes.

Coralberry (*Symphoricarpos orbiculatus*) is one of those dependable shrubs that fills in where its delicate brothers and sisters will not thrive. It can take almost any amount of shade, and yet is not unhappy in full sun. There is no danger of overwatering it; yet it stands neglect of many types.

Best of all, coralberry (also called Indian currant or even, Heaven help us—red snowberry—whoever saw

snow red?), is of the right size. So many good shrubs keep on growing until they get out of bounds. Especially with the contemporary house, a shrub over three or four feet is apt to look leggy and out of scale.

Coralberry can easily be kept within the height of three feet, partly because of its drooping habit. You can trim it to your heart's content. It fills little patches of ground, too small for large shrubs.

From all the foregoing it might appear that I am prejudiced in favor of this shrub. Well, I am; it has so many virtues.

Now, then, let us mention some of its bad qualities, or at least, its shortcomings. I can best illustrate them by an exclamation from one of my clients on seeing it in leaf in spring in her newly designed garden: "Why, it's nothing but 'buckbrush;'" we call that a weed in the place where I come from."

How often has a plant been doomed by that designation "weed," as if growing easily is to be held against any living creature. You

might as well consider a child second-rate because he never gets sick! Sure enough, coralberry is sometimes called buckbrush, and it grows in spite of not receiving all sorts of sprays and fertilizers. If that is bad, perhaps you would not want it in your garden of dainties.

Its flowers are nothing to talk about. There is a near relative, *Symphoricarpos oreophilus*, that grows in our mountains—as the name *oreophilus* (mountainloving) indicates—and that has decidedly attractive pink blossoms. Some day our plant breeders will cross it with coralberry and make it even more desirable.

And coralberry does spread by runners; you may find it taking over more territory if not kept in bounds. Is that bad? In some places yes, in

others no. It is far from being as aggressive as sumac for instance.

Many nurseries carry only *Symphoricarpos chenaulti*, which is a cross between *S. orbiculatus* and *S. microphyllus*. The latter is an upright Mexican shrub with small leaves and pinkish blossoms.

Two other relatives should be mentioned: Snowberry, *S. albus*, which has snow-white berries, turning brown in late winter, and *S. occidentalis*, the native wolfberry, very common in low ground and on hillsides up to eight thousand feet, which is quite hardy but not much to look at; its berries are dirty white and pointed.

This wolfberry could deservedly be kept out of most gardens by being called “weedy”. But coralberries? No!



GARDEN CLUB NEWS

Congratulation and best wishes for a successful year to Mrs. John Nickels of Littleton, Colorado who was recently elected president of the Colorado Federation of Garden Clubs, Inc., at the close of a two day convention at Whitman Hotel in Pueblo, Colorado.

Mrs. Nickels came to Denver in 1929 from North Dakota and later moved to Littleton in 1941. Her interest in horticulture (particularly in propagation) she attributes to the fact that she was born and grew up on a farm. Her favorite flower is iris so of course she belongs to the Iris Society as well as the Friendly Gardeners' Garden Club of Littleton. In her spare (?) time she attends the Floral Art Study Club and is a Nationally Accredited Amateur Flower Show Judge. One of Mrs. Nickels' first official acts as president was to appoint a member of the Federation to the Editorial Board of *The Green Thumb* in response to an invitation from this Board. We are happy to welcome Mrs. H. D. Duston in this capacity.

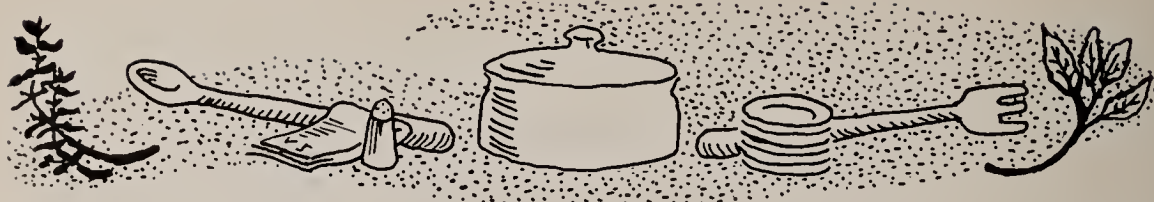
Again, we congratulate Mrs. Nickels (who, incidentally helped on our Look and Learn Tour this summer) and wish her every success in her new appointment.

We will have some of the finer varieties of patented roses for those who want to fill vacant spots in their rose beds. Container grown, ready for immediate planting.

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HERB TEAS

By CHRISTINA G. MOWAT

It is not generally realized that the subject of herb cookery is quite well covered in available books and publications, authored in the main by folk of foreign background, where the art originated. With the limited variety of foods in former times and the challenge which winter and off-season food preparation and conservation presented to our ancestors, herbs played a major role. The ingenuity and versatility displayed in the use of herbs has given us a fine heritage in herb cookery thus perpetuating food customs and traditions for us. Migrants from other lands brought their favorite herbs and seasonings with them and their imagination was also stirred with what they found available here.

With the changes in living habits from country life to city life, from an agricultural to an industrial economy, as well as the introduction of modern methods of food distribution and conservation, the art of herb cookery has been all but forgotten except by the rare adventurer. To him or to her, the increasing withdrawal of meadow, mountain and plain from nature's gardens, not to mention the thoughtless uprooting of native growth, available material has become so scarce and rare that even ardent nature lovers are unaware of this phase of botany. To replace this loss, a valiant effort is being made by those who have recognized an opportunity to revive or perpetuate an interest in herbs by cultivating and dis-

tributing them commercially, and enlightening the public in their use. These ventures stress their therapeutic value more than the culinary usefulness, whereas it would seem that greater progress in arousing interest and popularity might be attained by a reversal of the emphasis. Stressing the medicinal value has limiting aspects for some people who might be attracted by a gustatory appeal. The use of herbs in food could combine the psychological appeal with the therapeutic.

With all the seeming loss of natural sources of materials, much still is left for the really interested nature lover. There is an exciting side line for him other than an interest of a purely botanical nature. This is to delve into the practical use of herbs in foods and beverages. In the beginning it is best to confine oneself to a few of the more common and readily available plants and investigate their use and preparation in herb teas. In the main, the better known herbs prove more acceptable to the uninitiated for experimentation than the unusual ones referred to as exotic and glamorous, for which a taste must be cultivated after cautious adventure. Once a start has been made, a sustained curiosity and further expansion of interest and use are sure to follow.

The easiest and most satisfactory introduction to the use of herbs is for teas and beverages. Delicious and nutritious teas can be brewed from the leaves of wild strawberries, wild rasp-

berries, mint, and alfalfa, and from the blossoms of the red sweet clover, the alsike clover, alfalfa blossoms, and wild rose petals either freshly gathered or properly dried to retain their color and aroma. Our grandmothers made impure water safer and more palatable with these brews. Might these not solve our present problem of overcoming the chemical taste of drinking water and help us get our quota of liquids more pleasantly thus reducing the less desirable tea and coffee habit? The budget too, would profit by these substitutions.

The preparation of the leaves and blossoms of herbs is very simple. Young fresh leaves and new blossoms, free from blemishes or foreign material, are gathered when they are dry and not wilted. The leaves are thoroughly rinsed several times in lukewarm water until there is no evidence of sand or grit. Excess moisture from rinsing should be shaken off or allowed to drain on clean towels or absorbent paper. Mint leaves are not removed from stems till after drying to avoid oxidation of juices when exposed to air, and also to avoid darkening or discoloring of the brew. They should be dried quickly by spreading them on clean screening in bright sunshine. One day's exposure to Colorado sunshine and a second day of curing in a warm airy place is usually sufficient. However, the test of storability is when the product is brittle and there is no evidence of

limpness. In the case of mint, the stems are removed after drying by carefully stripping off the leaves, starting from the cut end of the stem toward the crown to a point where the stem becomes tender enough to break readily. Wild strawberry and raspberry leaves are freed of stems before drying as are all blossom stems. For alfalfa tea, only the tender crowns are gathered as the newest leaves have the best color factor of chlorophyll, which quick drying conserves more effectively. After drying, all herbs should be stored in air-tight, light-free containers. If glass is used, jars should be wrapped, and stored in a dark place.

The flowers of herbs must never be washed since they lose flavor by wetting them. Brewing them with boiling water in glass or earthenware containers will sterilize anything that might adhere, and produce the best brew.

To brew herb teas, proceed as with any other teas, pre-heating pot thoroughly, preferably glass or earthenware, and steeping the herb three to five minutes—three teaspoonfuls of fresh material or one teaspoonful of dried material to one cup of water is a basic proportion. If a stronger tea is desired use more herb, rather than steeping, to retain delicateness and fragrance of flavor. For iced herb tea, chill brew rather than resort to the use of ice.



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ALL AMERICA MUMS

Now is the time of year to look around garden-wise and feast your eyes on the lovely garden chrysanthemum.

Mums are the outstanding flower for mounds, borders and sheets of bloom from August until hard killing frosts. No other flower can compare with them for late summer and fall color. They create a riot of bloom, and in most any desired shade except blue.

From the low growing cushion mums, mounded in plant form and completely covering themselves with hundreds of blooms, to the taller, larger and more erect decorative mums, varieties answer individual tastes and desires. Whether for garden display or the longest lasting of cut-flowers, "mum's the word," the indispensable fall flower. And along with their glorious color, they are so easy to grow.

Great improvements are being made in creating new kinds. Many favorites of even a few years ago are already obsolete and others are being superseded by new varieties that bloom longer, have clearer colors, greater hardiness, disease resistance, better stems and foliage, prolific and larger, fuller petaled flowers.

There are tiny three-quarter inch "buttons" to massive eight inch "football" mums; trimly rounded pompoms for grand cuttings or ornately cushioned anemones; simple but colorful singles or daisy types; daintily contrived spoons, exotic spiders and more and more of fringed, carnation-like blossoms. All sizes and shapes! And the constant work of hybridizers insures the continuing of great improvements to this wonderful flower.

As mums are really coming into their own and reign as queen of fall flowers, it is only natural that public

and nursery demand is for thorough testing and screening of the many new varieties. All want to know which, of the new introductions each year, can be depended upon as the best of their kinds and colors.

Reliable plantsmen want to offer their customers the newest and best. So, leading mum breeders and growers have formed a non-profit testing organization called All-America Mum Selections for pre-introductory testing and scoring of proposed new varieties. They are compared with the best similar kinds and colors already being offered and must be of the highest rating; distinct, superior and answering a real need and desire to be considered for an All-America Mum Award and recommendation.

Ten plants of each new kind are furnished each of the fifteen mum judges, with trial grounds in as many sections of the country. Some of these are located at mum nurseries for thorough checking and comparison with other varieties. Others are at colleges and universities, one at Kingwood Garden Center in Ohio.

More new trial locations with accredited judges will be added, as trial grounds may be developed in climatic zones and sections not already represented. About twenty locations are under survey and consideration.

Judgment of a variety is based on twelve main characteristics by each judge according to the entry's behavior at his location and under his soil and climatic conditions. Scoring covers two seasons, with a check between for winter hardiness.

On a 100-point basis, maximum scores are divided as follows and you might try scoring your mums accordingly: Habit 11 points, Vigor 12, Foliage 5, Disease Resistance 5, Time of Bloom 8, Flower Form 7, Sub-

stance 12, Floriferousness 12, Distribution of Blooms 5, Duration of Blooming 5, Color-full open 10, Color-finishing 8. These total 100 points.

In addition, for special Novelty, add up to 5 points. For Lack of Hardiness, subtract up to 10 points. After scoring a variety, now give it your personal evaluation: Very Superior, Excellent, Good, Fair, Poor, No Good. Very superior should perhaps score over 85, Excellent 80 or more, Good in the seventies. Others should be disregarded and discarded.

All-America Mum evaluations are based on average scores of all judges.

From three years' entries, four varieties have been chosen as worthy of the highest award and recommendation of All-America Mum Selections. They will be announced in February, 1958, well in advance of April to June planting time. The complete and thorough testing these new mum varieties are subjected to gives the gardening public assurance that they will be more than worth their purchase. Each plant offered will carry the All-America Mum Certification tag.

All-America Mum Selections
W. Ray Hastings, Exec. Sec'y.
Box 675, Harrisburg, Pa.



New elections also for The Green Thumb Garden Club put Mrs. Irene Felt in office succeeding Mrs. J. A. Walker. The Club has an active group of workers at St. Luke's Hospital who arrange and care for patients' flowers as well as work at the D. U. Speech Clinic where they arrange for special displays during holidays. Four members are already the proud owners of 50 hour pins in this work.



The 15 most popular flowers are, respectively: the rose, gardenia, gladiolus, carnation, tulip, lily, lilac, lily-of-the-valley, violet, orchid, peony, dahlia, chrysanthemum, pansy and camellia, according to the American Association of Nursermen.



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LOOK AND LEARN GARDEN TOURS FOR 1957 FINISH A SUCCESSFUL SEASON

The Association's 1957 Look and Learn Garden Tours had a particularly successful season, thanks to its hard working committee chairman, Mrs. A. L. Barbour who was ably assisted by Mrs. Hugh Catherwood, Mrs. Robert McCurdy, Mrs. Albert James, and Mrs. Jean Williams. This committee began searching the city for gardens as early as last fall, continued working through the winter on ticket sales, and only just finished its activities a few weeks ago after the last tour. All this effort wasn't wasted for we had a record attendance in spite of inclement weather the afternoon of the last tour, taking in a total of over \$1100. And the chairman is *still* working. Mrs. Barbour and Mrs. Catherwood are out cruising Denver and its environs now looking for next year's garden spots so don't close your gardens for the winter yet. After all this hard work they certainly deserve three cheers and a 21 gun salute.

Last but hardly least and most particularly, a warm thank you to the garden owners, hostesses, and experts who so graciously helped make the tour such a big success. Your names are listed below—we hope we have not overlooked anyone for each of you played such an important part.

GARDEN OWNERS: Mr. and Mrs. Watson A. Bowes, Mr. and Mrs. Charles P. Gordon, Jr., Mr. and Mrs. Norman C. Barwise, Mrs. W. E. Weldon, Mr. and Mrs. Frank Pluss, Dr. A. A. Hermann, Mr. and Mrs. Charles G. Keim, Mr. and Mrs. David C. Bole, Jr., Mr. and Mrs. F. W. Meyer, Dr. and Mrs. George W. Holt, Dr. and Mrs. E. C. Claus, Mr. and Mrs. Paul Ambrose, Mr. and Mrs. David Dunklee, Mr. and Mrs.

Thomas P. Campbell, Mrs. Louise C. Knight, Mr. and Mrs. Gilbert J. Mueller, Mr. and Mrs. J. Churchill Owen, Mr. and Mrs. N. Rulison Knox, Mr. and Mrs. Sewell Thomas, Mr. and Mrs. Bayard K. Sweeney, Mr. and Mrs. A. B. Miller, Mr. and Mrs. G. G. Brooder, Mrs. Vest, Mr. and Mrs. F. Lorton, Mr. and Mrs. Edwin A. Francis, Dr. and Mrs. E. C. Wharfield, Mr. and Mrs. Marvin Mintz.

HOSTESSES: Mrs. Hugh Catherwood, Mrs. Clyde Learned, Mrs. Carol Sack, Jr., Mrs. Robert McCurdy, Mrs. Albert James, Mrs. Joseph Freedman, Mrs. Louis C. Loeb, Mrs. Roy Machamer, Mrs. Don Aylesworth, Mrs. C. E. Almquist, Mrs. Gay Venrick, Mrs. Ira Hammergren, Mrs. Andrew Riggs, Mrs. Harold Kountze, Mrs. Ralph Mitchell, Miss Elizabeth McNary, Mrs. Russell Meyer, Mrs. Frank Brady, Mrs. J. A. Walker, Mrs. Jerome Strickland, Mrs. Robert Lehman, Mrs. Albert Patten, Mrs. Frank McLister, Mrs. H. M. Kingery, Mrs. Roark, Mrs. Dan McKenna, Mrs. Roscoe Fleming, Mrs. A. L. Barbour, Mrs. Fred Dyer, Mrs. S. W. Megill, Mrs. E. H. Honnen.

EXPERTS: M. Walter Pesman, Dr. Helen Marsh Zeiner, Earl Sinnamon, Mrs. C. F. Jones, Mrs. J. V. Petersen, Richard Armstrong, Mrs. Ray Turnure, Henry Gestefeld, Patrick J. Gallavan, Curtiss Pollari, Mrs. E. C. Horne, Wendell Keller, Robert Woerner, Mrs. Christensen, Maurice Marshall, Edmund Wallace, Edward Johnson, Charles Fischer, John O'Brien, Clyde Learned, George Kelly, Mrs. William Crisp, Lou Hammer, Bill Lucking, Stanley Brown, Michael Ulaski, Kenneth Wilmore.

Seasonal Suggestions

Flights of ducks winging their way southward; the tangy aroma of burning leaves; silvery frost on morning lawns; the march of tiny witches and goblins; the orange blush of pumpkins; silent shocks of corn in empty fields; popcorn and apples at the fire side; donut and cider parties; battles of the giants on the Gridiron—this is fall in the High Plains country. To the gardener it's clean up time for he has a number of things to do to prepare his garden for winter.

It's the best time of the year to prepare vegetable gardens and annual beds. Spread a liberal amount of manure, leafmold, or other organic matter over these areas, spade it under, and let it lie fallow. The freezing and thawing through the winter will help condition these beds.

LAWNS

Of course if you have trees, the question of raking leaves comes up. A light and open cover of leaves won't hurt your lawn, but a thick mat will, so it is better to rake them evenly over your lawn and remove any excess.

MULCHES

Use any excess leaves for mulching or for composting. Speaking of mulching, if you have an attachment for your mower or if you want to rent a mulching machine, raking won't be necessary. Mulching materials such as leaves, wood chips, peatmoss, etc. should be applied around trees and shrubs in your borders. The use of such materials reduces the loss of moisture from the soil. This is particularly important in this area where our winters are often dry and open. Mulching also prevents excessive heaving caused by freezing and thawing.

TREE CARE

Your trees both young and old are apt to need attention at this time. Young trees, especially the smooth barked species such as apples, lindens, and maples, should be wrapped to prevent sun scald. A special paper called "tree wrap" available at most nurseries and seed stores makes this job an easy one. It comes in rolls 4 to 6 feet wide and is wound spirally around the trunk of the tree from its base to the first branches. Take a close look at your older trees. Notice particularly excessive tip growth and weak short V crotches. These are the two things you can correct by pruning that will help eliminate storm breakage. If your trees are large, it is better to call a tree service company. A number of reliable companies have ads in this issue.

ROSES

Our good friend Clyde Learned reminds us to hill up our roses early in November. You might refer to your 1956 October-November issue for complete instructions on fall care of roses.

WATERING

Watering is another important factor in preparing your garden for winter. Be sure that you give your lawn, trees, and shrubs a good thorough soaking before the ground freezes up. After you have done this, you can drain and roll up your hoses but keep them handy. If we have an open, dry winter, your trees and shrubs, especially evergreens, will need watering at least once a month.

BULBS

There is still plenty of time left to plant tulips, narcissi, crocus, and hyacinths. All these spring flowering beauties, particularly tulips, can be planted as long as the soil is workable.

TOOLS

Don't neglect your garden tools. Clean them up and repair them if needed before you store them for winter. A light coat of oil on metal parts of tools will keep them from rusting. If your lawn mower needs sharpening or repairing, take it to the repair shop through the winter months, then it won't be out of commission when you need it in the spring.

Hope you can find time to attend some of the sessions of the American Horticultural Council Congress at the Albany Hotel, October 23-25. If you want to see what can be done with dried flowers, plan to go to the Home Garden Club's dried flower show at the Denver Museum of Natural History, City Park, November 9-10. You'll be pleasantly surprised if you do.

Thoughts of fishing turn to hunting now. Just hope the ducks and geese are more plentiful than the fish. Oh well, its a good excuse to get out and enjoy the out-of-doors! —Pat



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The Green Thumb

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The Green Thumb

Vol. 14

December, 1957

No. 10

Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."



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Fred R. Johnson, Herbert C. Gundell
Assistant Secretary-Treasurer..... Helen M. Vincent
Editor..... Patrick J. Gallavan

MEMO

Calendar of Events

"Fun with Flowers"—The Colorado Federation of Garden Clubs is sponsoring workshops in flower arrangement again this year. A lecture and demonstration is followed by the making of arrangements. Each person brings con-

tainers, mechanics, and material. The workshops are open to everyone. Due to popular demand the workshops will be held each month at the following times and places:

Workshop No. 1 — 1422 Kenton, Aurora, First Monday, 10:00 a.m. Chairman: Mrs. Fred Harper, 270 Jersey, Denver

Workshop No. 2 — Lakeside Denver Dry Goods, 44th & Harlan, Denver, Second Tuesday, 10:00 a.m. Chairman: Mrs. C. C. Buckbee, 4190 Depew, Denver.

Workshop No. 3 — Englewood State Bank, 180 East Hampden, Englewood, Second Wednesday,

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10:00 a.m. Chairman: Mrs. H. E. Cluphf, 3888 South Grant, Englewood

Workshop No. 4 — Arapahoe County Fair Grounds, W. Belleview & Windemere, Littleton, Third Tuesday, 10:00 a.m. Chairman: Mrs. John Sobiella, 386 N. Windemere, Littleton.

December 4 — Botany Club meets the first Wednesday of each month, 7:30 p.m. Horticulture House

December 11 — Organic Garden Club meets the second Wednesday of each month, 8:00 p.m. Horticulture House

December 23 — African Violet Club meets the 4th Monday of each month at Horticulture House at 8:00 p.m.

Green Thumb Program—9:00 a.m. each Saturday KLZ, 560 on your radio dial. Pat Gallavan, Horticulturist.



NOTICE! The next issue of *The Green Thumb* will be a combined one for January and February and will be out around the end of January.



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IMPRESSIONS OF THE 12TH ANNUAL HORTICULTURAL CONGRESS Denver, Colorado

We came—we saw—we heard—we *were* conquered by the warmth of Denver hospitality; conquered by our genial host, the Colorado Forestry and Horticulture Association, and conquered by the sincerity of purpose which the very able Congress committee displayed.

We were conquered by the staging of an excellent congress which helped very materially in breaking through the distance barrier, and in demonstrating that the American Horticultural Council is truly a national organization. While still a youthful organization, this Congress has given substantial help in speeding our maturity and has given us additional stature. We hope the Congress has sufficiently impressed you with its aims and ambitions for a "United Horticulture" and has earned for us a return engagement and your continued support.

We are, indeed, grateful to our hosts, and the very able Congress Committee under the leadership of its chairman, Mr. Patrick J. Gallavan, for its splendid arrangements and programs and publicity, and for the extreme smoothness with which all sessions and every phase of the Congress were conducted, demon-

strating a large amount of work and planning, both before and during the Congress. For all this, we offer our congratulations and gratitude.

We were particularly impressed by the various speakers and programs all keyed to Rocky Mountain Horticulture. As George W. Kelly pointed out, "it is different," largely because of the limited precipitation in your area. Those of us from the middle Atlantic seaboard where we recently had the worst drought in 130 years, feel that perhaps our horticulture may also become different, and that, we too, may have to follow Rocky Mountain practices in water conservation.

The American Horticultural Council will hold its semi-annual or spring meeting on March 10, 1958 at the New York Coliseum, timed to coincide with the week of the International Flower Show. You are cordially invited to attend this meeting and to see a truly great Flower Show, at which A.H.C. and many of its affiliated organizations will be well represented.

A. J. Irving, *President*
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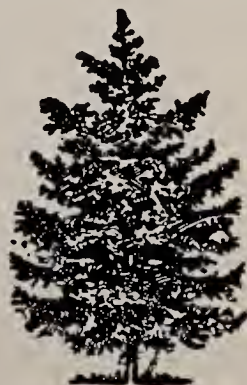
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REPORT OF THE 12TH ANNUAL AMERICAN HORTICULTURAL CONGRESS HELD AT DENVER, COLORADO

By MARGARET HERBST

Much has been written about the 12th Annual American Horticultural Congress which was held at the Albany Hotel, Denver, Colorado October 23 to 26. Over 80 delegates gathered to participate from all parts of the country.

The following officers were elected at the Congress for two years: President, Dr. Albert J. Irving of New York City, an executive member of the Horticultural Society of New York; Mrs. Jesse R. Hakes, Glenwood, Md., first vice-president; Dr. Henry T. Skinner, Director of the National Arboretum, Washington, D. C., second vice-president and Dr. Donald Wyman, of the Arnold Arboretum, Jamaica Plain, Mass. for the combined post of Secretary and Treasurer.

The Garden Writers Association of America opened the Congress with a special breakfast on the morning of October 23. The first event was a scheduled luncheon for all delegates courtesy of Ortho Garden Products. The speaker at this occasion, George Kelly, gave a very informative slide-illustrated talk on an "Introduction to Rocky Mountain Horticulture."

The afternoon session began with a paper on Lilacs given by Dr. John C. Wister, Director of the Arthur Hoyt Scott Horticultural Foundation at Swarthmore, Pa. He covered botanical relationships, horticultural or garden history, simple requirements of lilacs, modern garden varieties and future breeding. Dr. Robert W. Schery, Director of the Better Lawn & Turf Institute spoke on High Plains Lawning and Progress Parade in a difficult area.

He discussed the bluegrasses as the mainstay grass with mixture companions such as the red fescue group. Watering, fertilization, weed control and other good management practices were treated in a clear analysis of the home lawn problem.

Of particular interest to florists was the excellent story of Colorado Carnations as told by Prof. W. D. Holly of Colorado State University, Fort Collins. Beginning with the pioneering days of 1906, a few growers soon found that any variety that would grow in Colorado would invariably keep longer than the same variety grown in other sections. Mr. Holly traced the success of the industry under the cooperative aegis of the Colorado State Flower Growers' Association to its present production of 50 million blooms per year with distribution to 38 states.

Due to the illness of Norvell Gillespie, the subject of Commercial Horticultural Accomplishments was treated by Jack Edminster of Ortho Garden Products. He stressed how the industry is meeting the challenge of modern needs. Mr. Robert More, author of "Colorado Evergreens" was the dinner speaker that evening.

Thursday morning, October 24 was devoted to the Annual Plenary Session when Council Committees and Commissions made annual reports. One of the most important reports of interest to nurserymen in that session was the presentation by Dr. J. Franklin Styer on a program for the registration and testing of woody plants. Plans call for the establishment of a registry employing



The 12th Congress Committee: Bob Woerner, Pat Gallavan (chairman), Earl Sinnamon, Maurice Marshall, George Kelly, and Bill Gunesch (not pictured).

a graduate botanist with taxonomic training together with necessary clerical help. A number of arboretums have already agreed to act as test stations. An Advisory Committee would serve on which members would participate as appointed by the American Association of Nurserymen, the American Horticultural Council, the Bailey Hortorium and the American Association of Botanical Gardens and Arboretums.

One of the outstanding achievements of the past year was the completion and production of the Nickerson Color Chart in the form of an easier to use fan adapted to horticultural use. These are now on sale through the AHC Secretary, Dr. Donald Wyman, Arnold Arboretum, Jamaica Plain, Mass. at a unit price of \$5.00 with discount possibilities. The Plant Hardiness Zone Map, another monumental work of the Council, will be printed by the U.S.

Government Printing Office as prepared by the National Arboretum in cooperation with AHC.

Speakers at the Congress included George W. Kelly of Denver on Rocky Mountain Horticulture, Dr. John C. Wister, Swarthmore College on Lilacs, Dr. Robert W. Schery, Better Lawn & Turf Institute on High Plains Lawning, Jack Edminster of Ortho Garden Products on Commercial Horticultural Accomplishments, Robert More of Denver on Colorado Evergreens, Charles Drage, Extension Horticulturist at Colorado State University on Horticulture and Agricultural Products of Colorado.

Other speakers at special sessions were Herbert Gundell, County Agent of Denver County, Mrs. Hugh H. C. Weed, Horticultural Representative of the Garden Club of America, Robert L. Woerner, Denver Botanical Garden, George

Spalding, Superintendent of the Los Angeles Arboretum, Margaret Herbst, Public Relations Consultant from New York and President of the Garden Writers Association, Prof. A. M. Binkley of Colorado State University and Dr. A. C. Hildreth, Cheyenne, Wyoming Experiment Station.

A fitting climax to the festivities was the Annual Banquet when special citations were presented personally to Dr. Francis A. Bartlett of Bartlett Tree Expert Co., Stamford, Conn., Dr. Edwin A. Men-

ninger, Stuart, Florida and George W. Kelly, Denver, Colo. A citation will be presented separately by President Alampi to Dr. Harold Bradford Tukey, Michigan State University, E. Lansing, Michigan and a Gold Medal Certificate to Miss Dorothy Nickerson, Washington, D. C. for her contribution of the Color Fan. Glenn Raines of the Iowa State Horticultural Society accepted the Citation for Arie F. Den Boer of Des Moines, Iowa. President Phillip Alampi, Secretary of Agriculture of the State of New Jersey presided at the Congress.



THE FOLLOWING CITATION WAS PRESENTED AT THE RECENT AMERICAN HORTICULTURAL COUNCIL CONGRESS:

The American Horticulture Council through its Board of Directors presents this citation to you, George W. Kelly of Denver, Colorado for many years the editor of *The Green Thumb*, the official magazine of the Colorado Forestry and Horticulture Association. You have placed this magazine on a high and distinguished level among American horticultural publications. Through its pages you have developed greater enthusiasm for gardening, not only in Colorado and the adjacent mountain states, but all over this country. You have also explored the mountain areas in search of new plants suitable for our gardens and have made many of them available through your new garden center. Through these efforts you have opened the way to successful gardening in a section of the country where growing conditions are adverse.

(Signed) PHILLIP ALAMPI, *President*
Donald Wyman, *Secretary*

October 25, 1957



Mrs. William H. Crisp, botanist and former instructor of health and biology, was installed recently as president of the Home Garden Club of Denver.

The former Katherine Bruderlin, Mrs. Crisp was recognized by Joseph Ewan in his book "Rocky Mountain Naturalists," for her work, "A Study of Lodgepole Pine Forests of Boulder Park." A member of the editorial board of *The Green Thumb*, she is the author of other books including two textbooks on health published under the auspices of the Denver public schools.

Organized by the late Mrs. A. G. Fish in 1925, Home Garden Club was the first organization of gardeners and is the largest independent group of gardeners in metropolitan Denver.



Arrangement of the Month

An antique bronze container compliments branches of long needle pine and white Fuji chrysanthemums in the above arrangement by Mrs. John Mackenzie. Here, the essence of flower arranging, which is the molding of natural beauty into art by expressing the living dynamic beauty that is present even in the tiniest of plants, has been sensitively expressed. The benefits that can be derived from a beautiful piece, as stressed by the Japanese, are tranquility and peace of mind, a cheerful atmosphere, and spiritual growth. Mrs. Mackenzie has surely achieved these things in the above creation.

*Arrangement by Mrs. John Mackenzie
Photo by Jack Fason*

THE MIRACLE OF THE CHRISTMAS ROSE

By MELANIE B. BROWN



The miracle of the Christmas rose, is, of course, the fact that it starts blooming in the latter part of October and continues to do so through snow and freezing temperatures all winter long until early spring. Naturally, because of such a phenomenon, there is folklore and legend surrounding it, but nowhere in the folklore (although I haven't made an exhaustive study) have I been able to find where or how the flower came to be called a "rose," since it is definitely a Eurasian herb belonging to the buttercup family. It is occasionally called Christmas flower, winter rose, snow rose, Christ herb, and melampode, but these are less familiar names. Scientifically, it is *Helleborus niger altifolius* and from this comes another name, black helebore, which seems to be a compromise between popular nomenclature and the other extreme.

The ancients held it in esteem as a cure for madness, epilepsy, and gout. It grew in abundance around the Greek city of Anticyra, so it was there that the insane and sick were sent. In the time of Queen Elizabeth (Sir Walter Raleigh's Elizabeth), it was a cure for melancholy, but it had to wait for the Germans to be given the name of Christmas rose. In relatively modern times it has been used in cardiac and nervous ailments.

One legend of its origin tells of a little shepherd girl who followed her brothers to the manger in Bethlehem. There she saw rich presents from the wise men and left in sadness because she had no offering. Back with her flocks, she was suddenly confronted with a blinding light—and behold, there came one of the announcing angels. When she was asked the cause of her sadness and the angel found it was because

she had no gift with which to bring joy to the Child of Bethlehem, the spirit waved a lily he carried and suddenly the ground was white with Christmas roses. Joyously she filled her arms with them and hastened to the manger. The Christ Child turned from the precious gems and gold of the magi and reached smilingly for the blossoms the shepherdess heaped at his feet.

Another version tells the story of Jadab, a poor slave, who stood at the Gates of Paradise. And while at long last he was free from the tyranny of slavery, he still looked wistfully back to Earth. When asked by the Gatekeeper why this was so, Jadab said, "Though my life there was filled with the dark agony of chains, endless toil, the lash, yet Earth was full of wonder. Great works were performed by men of power; soaring palaces there were, great battles won! I shall never return and I sigh that no smallest sign of my passing shall ever be. The slave is without suitable place on earth, without honor of family or son."

The Gatekeeper, feeling great compassion for Jadab, obtained permission for him to return to Earth to choose whatever monument he pleased. On the way back down, Jadab decided that men should remember him as the most valorous of all his fellows. All their sons and grandsons would hear of his great and glorious deeds of courage on the field of battle. But as he stood in the tent of a conquering king, invisible while weighing his choice, he saw the king's awareness of envy and hatred from those close to him, saw the terror of the conquered, and saw even the fear of the conquering king.

Jadab then decided that perhaps he would build a palace such as had

never been seen before for his monument, where no man would be turned away hungry. But as he traveled to the place where he would build it, he overheard a traveler telling tales of adventure, and of seeing a spot where once a great city stood, but where now there was only drifting sand.

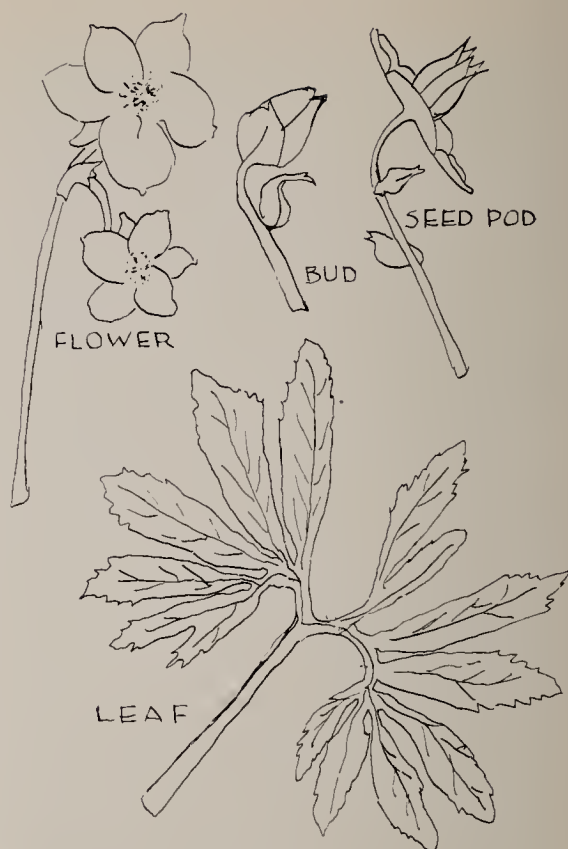
Puzzled and discouraged, Jadab began to consider all men, high and low, and realized how often they saw only dimly or not at all the things of real worth which could bring them happiness. Then he decided that he would like to leave a gift, not for *his* honor, but for the humble man, so that even if it were just for a moment, the weary eye would be brightened and the weary heart lifted of such a man.

Suddenly Jadab felt the living grass and earth under his hand. The gift of a flower—one that would grow on a stony hillside where the lowliest of men might be cheered. Back at the Gates of Heaven the Gatekeeper spoke to Jadab saying, "Heaven understands your heart's desire, Jadab. Look back once more." And far below on the mountain side was a flower, a simple white star, but of such strength and beauty that it multiplied and persisted through countless generations of men to cheer them. And as the Gatekeeper predicted, it was one day given a name that had honor above all others—it was called the Christmas rose.

Now while these legends tell of its hardiness on rocky mountainsides in Europe (it is indigenous to rocky places in Southern Europe and Western Asia), in this country it seems to prefer fairly rich, well-drained soil, and partial shade. It is an herbaceous, stemless perennial, which means its leaves and flower stems spring directly from the root-

stock of the plant just below the ground. The leaves are palmate—they resemble the shape of a palm frond—with irregular, toothed lobes, and are a rich dark green that are evergreen in mild climates. In moderate to severe climates the leaves are produced in early spring, remaining on the plant, dark and leathery, through the following winter and are replaced the next spring.

The flower bud emerges from the ground neck first, the last of October with the downward pointing bud wrapped closely by two or three green bracts. This is the only protection the bud has against the cold of winter. While still small and tight, the bud orients itself to the strongest light and at a right angle to the stem. It is usually fully open from the middle to the last of November. The flowers remain showy



for a month or more with new buds appearing on established plants until late spring. In five or six years a plant will have 50 or more blooms.

CULTIVATION

Planting time for the Christmas rose is best when the plant is in flower for it is making root growth at this time. Propagation by dividing the crown, is best performed too when the plant is flowering. It is easy to grow from seed if the seeds are used right away for they lose viability quickly. Seeds are usually ripe in May but if the winter has been a severe one, fall blooming plants will not mature seed. Vegetative propagation is therefore recommended.

If plants from seeds are desired, sow them in pots $\frac{1}{8}$ inch deep in any good soil. Water down lightly. Then put them outside with a glass over the top of the pot which

is sunk in the ground in a shady spot. A cold frame would be a deluxe method. When the ground thaws, there should be signs of germination. Remove the cover and when the first leaves have developed, transplant to small individual pots. The seedlings grow quickly at first, but during the summer there is not much activity. Keep watered, and in the fall when growth starts again, transplant to a permanent location and leave them there. If the spot proves to be a bad one, don't hesitate about moving them but Christmas roses put down deep roots—16 inches—so they are better off undisturbed.

Hellebores need deep rich soil that retains some moisture and is neutral to moderately alkaline. A planting in an east exposure near buildings or at the edge of shrubbery is ideal. A north exposure with plenty of light is good too. If possible they should be protected from severe west or north winds in winter and from hot afternoon sun in summer. A woodland planting is ideal. A cup of bonemeal or superphosphate to a bushel of soil makes a good starting medium.

Unless weather is excessively hot and dry, black hellebores will not require much watering in summer, the dormancy period. But when actively growing they are greedy for water. Quantities of peat moss, manure, and such where garden soil is of average texture is not beneficial for in periods of excessive rainfall, crown and roots are apt to rot. Likewise, poor surface drainage (water standing on the crowns from thawing, or rain while the ground is still frozen) is harmful.

ENEMIES

Hellebores have few, if any, diseases or pests. Occasionally leaf-

spot from too acid soil might occur but in this alkaline part of the country this won't be a problem. If Phoma rot occurs which is a fungus that attacks the roots, move plants to another spot and dust the crown with sulphur.

GARDEN ADAPTATION

Black hellebores are excellent plants for edging stone walks, for rock gardens, in the front of perennial borders in half shade, and in front of low refined shrubs. Scattered around in naturalistic plantings they are charming. If placed a foot apart, the plants will be encouraged to grow more upright and produce longer flower stems.

When the weather falls below freezing, the flower and its stem will droop and shrivel. The colder it is, the more pronounced is this reaction. The stem is succulent and freezes stiff and hard, yet when the ground thaws the flower stands up. Blooms are much more beautiful before severe weather sets in but they do flower through snow.

CORSAGES

For corsages and table arrangements these flowers are ideal. The leaves of the plant should not be cut, however, because they are so slow of growth and all the leaves are needed for profuse blooming. Use other plants for foliage such as pachysandra or leaves of the broadleaved evergreens. Cut flowers last for two weeks in ordinary temperatures and much longer in cold rooms. "Harden" the flowers after cutting by letting them stand in water for 24 hours in a cool place. If they droop after some days, snip a little off the end of the stem and replace in fresh water. Flowers may be cut even if frozen hard, but be careful not to bruise them. Let them thaw

gradually in a cold place. Frozen buds may be cut and kept in a cold room or enclosed porch. Here they will open slowly and may be brought inside, a few or as many at a time as may be needed, over a period of several weeks.

These are charming as well as hardy plants. They fill so well the long winter months that are usually

without outside bloom, that it is surprising how few people know or use this miracle of the flowering world—the Christmas rose.

Source: Myths and Legends of Flowers, Trees, Fruits, and Plants by Charles M. Skinner. The Christmas Rose by Arthur E. and Mildred V. Luedy.



LAND POLICY IMPORTANT

America is getting to be, in some ways, not a better place to live and work and play, but more and more unattractive, and land policies of home owners, industry and public authorities assume greater importance every year.

The answer to a more beautiful America is not more rules and regulations, but education of the public to the economic and aesthetic advantages of proper conservation and beautification of land.

Merry Christmas

and

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SYMBOL

By PAT GALLAVAN



Elsewhere in this issue of *The Green Thumb*, you will find an article dealing with the statistics of the Christmas tree business in the United States. The amazing figures given there cause one to ponder. What driving force is behind the growth of this symbol of Christmas, and does it truly express the purpose of this joyous season? Let's take a look into the past to see if we can find an answer.

As is true of many things of tradition or custom, there is little in recorded history that would definitely pinpoint the origin of the Christmas tree as we know it today. There are, however, numerous legends regarding its use. It is from these recorded legends that we find the material for the following stories:

Starting with man himself, one legend indicates that the fir tree is the "Tree of Life" that bloomed and bore fruit in the Garden of Eden. When Eve was tempted and ate of its fruit, the foliage shrank to its present needle-like form. Then on the night that Christ was born, it regained its rank again and became favored over all trees as the symbol of Christmas.

It is said too, that the druids brought boughs of evergreens into their huts as a symbol of everlasting life, and to provide comfortable winter quarters for the imps and fairies who dwelt in the branches of the trees in the surrounding forests.

According to folklore, the ancient

Egyptians used the palm tree in a year-end celebration honoring the goddess Isis. The palm tree is said to produce a new shoot each month and at this particular celebration, one with twelve shoots was used to symbolize the completed year.

History indicates that the old Romans used boughs of evergreens in decking out their homes when celebrating the Saturnalia in honor of Saturn, the god of Agriculture, much as we do today. They also used candles and passed out presents on this particular occasion. A Viking legend has it that the Lord sent his three messengers, Faith, Hope, and Love to aid a missionary by seeking out a tree for lighting that was as high as faith, as eternal as hope, as wide spread as love, and which bore the sign of the cross on every branch. After due consideration, they selected the balsam fir as the tree most nearly meeting these specifications.

From the Holy Land itself comes this version. There were three trees growing near the stable at Bethlehem where Christ was born—a palm, an olive, and a fir. The stately palm made an offering of its dates, and the olive of its fruit, but the fir having nothing to give, raised its branches in adoration. This, it is said, so pleased the heavens that angels were sent with stars to hang on its branches. Thus it became the first Christmas tree.

In Germany, one legend attri-

butes the Christmas tree to Saint Winifred, a crusader who worked with the pagan druids. As the story goes, a young prince was to be sacrificed at the sacred oak during a special ceremony. St. Winifred, wanting to stop this pagan practice, and wanting to fill the druids with the glad tidings of Christianity, decided to cut down the giant oak. . . . "as the blade circled above his head, and the flakes of wood flew from the deepened gash in the body of the tree, a whirling wind passed over the forest. It gripped the oak from its foundations. Backward it fell like a tower, groaning as it split into four pieces. But just behind it and unharmed stood a young fir tree, pointing a green spire towards the stars. Winifred let drop the ax and turned to speak to the people: 'This little tree, a young child of the forest, shall be your holy tree tonight. It is the wood of peace, for your houses are built of fir. It is the sign of endless life, for its leaves are ever green. See how it points to Heaven. Let this be called the tree of the Christ Child; gather about it not in the wild woods but in your homes; there it will shelter no deeds of blood, but loving gifts and rites of kindness!'"

Another legend coming from Germany, and the one most generally accepted by historians is that the Christmas tree, as we know it, originated with Martin Luther. According to this account, Martin Luther was strolling through the woods one clear, cold, wintery Christmas eve when he was suddenly struck with the beauty of glittering crystals of snow clinging to the boughs of a small fir tree. So enthralled was he by the splendor of this sight, he cut down this small tree and carried it home. There he decked it with candles and presented

it to his wife and children as a symbol of the beauty of this wondrous night.

It is known that the custom spread throughout Europe after Luther's time, but it moved slowly throughout the rest of the world. This custom was introduced in England during the 18th century by Prince Albert and into America around 1800. Early records indicate that Hessian soldiers in old Fort Dearborn in Chicago used a Christmas tree in their holiday festivities. Later in 1840 it was mentioned that a tree was used in a church in Rochester, New York. In 1847 a tailor, August Imgard, caused a sensation in Wooster, Ohio when he set a Christmas tree up in his home. The following year, reportedly, many Wooster homes had similar trees.

While this completes some of the legends and history of the Christmas tree, our story wouldn't be complete without mentioning a few famous Christmas trees throughout our country. Probably the best known of these is the National Community Christmas tree, lighted and dedicated annually on Christmas Eve by the President of the United States. This year marks the 34th anniversary of this ceremony which since 1929 has been broadcast throughout the nation.

The Community Christmas tree actually began in 1912 in New York at the suggestion of a successful artist. A huge tree was erected in Madison Square Park and dedicated as "The Tree of Light." Other cities adopting this custom the same year were Buffalo, Hartford, Boston, Kansas City, and San Francisco. The following year, Philadelphia erected its famous "Children's Christmas Tree." Since then, a great

many of our cities have followed suit. Here in Denver we have the huge tree in Civic Center of which we are justly proud.

The largest Christmas tree in America, designated as the "Nation's Christmas Tree," is not found oddly enough within any of our great cities, but rather it stands living in a forest that was growing when Christ was born. This tree dedicated in 1952, is the General Grant Tree, a giant Sequoia grow-

ing in Grant Grove of King's Canyon National Park in California.

The most important tree of all, of course, is the tree that fills *your* livingroom and brings the spirit of Christmas to your hearts. Perhaps knowing a few of the legends and stories behind this wonderful custom and the tree that symbolizes eternal life, faith, hope, and love, peace on earth, and good will to men, you may celebrate a more joyous Christmas.



SAFeway TREE

When the new shopping center in Denver at 13th and Krameria streets was constructed, a blue spruce tree in the adjacent area was about to be cut down to make way for the necessary public parking.

Mrs. Phillip Wilcox, a member of the Colorado Forestry and Horticulture Association had long admired this tree. Knowing of its impending fate, she dashed off a parody on Joyce Kilmer's "Tree" poem and sent it to an official of the Safeway Company with a plea that the tree be saved.

To her surprise and joy the official replied that not only would the tree be saved and protected by a concrete curbing but a plaque with the author's poem would be set up.

Pictured on this page is the tree and the plaque with these words:

"I hope that I shall live to see
A Safeway store that has a tree
A tree that may in summer share
Her shade with shoppers everywhere
A tree whose hungry roots go down
Like Safeway prices for the town
A tree that looks at shops all day
And lifts its lofty arms to say
Service is offered by stores like thee
But only Safeway has a tree."

Our congratulations to Mrs. Wilcox and to Safeway. As William J. Barker said in the Denver Post: "Surely only in Denver, bless her, can such things happen."—FRED R. JOHNSON.





THERE ARE MISTLETOES AND MISTLETOES

By CHARLOTTE BARBOUR

The traditional plant of this name is common as a parasite on oak trees both in Europe and the southern part of the United States. In appearance it is a bushy shrub-like growth with light grey leaves and white berries. This is the well-known addition to the Yuletide season under which young females are kissed.

The other so-called mistletoe is a pest much dreaded by the Forest Service. It is called *Arceuthobium vaginatum* (small or dwarfmistletoe) and is found in this area chiefly on ponderosa pine, but occurs also on lodgepole pine, where it slowly undermines the strength of the tree if it spreads extensively.

In appearance it is light, almost yellow green and the small fan-like fronds that adhere to the limbs are from one to six inches in height.

The seeds of this dwarfmistletoe are borne in explosive berrylike fruits. At maturity they may be shot 50 or more feet away from a host tree and thus gradually encroach upon the surrounding forest. These seeds are covered with sticky viscin and adhere to any surface with which they come in contact. Therefore, when birds feed on the sticky pulp of the berry, often the discarded seeds stick to the bills, feet, and other parts of the body and are carried to other trees or other parts of the same tree where they are brushed off on a branch or twig and germinate.

New infections are particularly serious when seeds germinate on twigs because an absorbing root of the parasite can more easily penetrate the tender bark of a twig to attack the living phloem of the host tree. This root then takes what nour-

ishment is needed to produce the parasitic plant. As the twig grows, the root strands of the parasite are permanently imbedded in the wood of the host. When this absorbing system is thoroughly established, it sends out buds that develop into shoots. This can happen a year after infection or may be delayed a decade or more. Flowers of the dwarfmistletoe parasite are male and female (dioecious). Insects carry the pollen from the male flower to the female flower. Five to sixteen months later the fruit matures.

CONTROL

Some authorities think there is a possibility that certain mites and scale insects and other insect pests kill dwarfmistletoe and can therefore be used to control it. This theory, however, is still in the research stage. Right now, physical removal of the parasite on the tree or the removal of the entire tree (if badly infected) is the only known means of control.

Belying its lethal qualities, it looks rather pretty in the accompanying illustration.



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A Group of Federated Garden Club members busy with the Christmas tree project. Standing left to right: Mrs. W. L. Prouty, post president of the Federation; Mrs. George Kimsey, Littleton; and Miss Ruth Flonnery, Recreation Supervisor of the Red Cross. Seated: Mrs. J. H. Kinkade, Greeley.

A YULETIDE PROJECT

By MRS. H. D. DUSTON, *Federated Garden Club*

Long before the actual work of the Christmas Tree Project is begun, ground work is laid by the committee. This project, planned and carried out by the Colorado Federation of Garden Clubs, provides five to six hundred miniature Christmas trees for veterans in Denver hospitals.

Early in December workers gather together to check and count ornaments. These are put in boxes of one dozen each, allowing two dozen for each tree. The boxes are counted and an order placed to fill out the needed number. Then coffee cans are collected and colored foil is purchased to be cut in strips to fit them. Bundles of fresh green fir boughs are ordered, also bags of plaster of Paris, wire, fine sand, and transparent tape.

Ten days before Christmas the materials are assembled in the recreation room at Fitzsimons Army Hospital. Club members come from Denver and the metropolitan area, also from Boulder, Idaho Springs, Greeley, Colorado Springs, Monte Vista, Cortez, and many other places in the state. Last year more than thirty clubs sent workers.

Under the direction of experienced leaders, an assembly line is set up.

Cans are counted and filled two-thirds full of sand. The sand is moist to keep the tree fresh and to fire-proof the green branches. Selecting boughs of pleasing form, with a wire here and there, a tree, uniform in shape, 18 inches tall and 12 inches wide is fashioned. Snipping a bit off here, adding a twig there, checking for the conformation of a beautiful symmetrical tree, the worker then places it in the sand. Plaster of Paris of the right consistency is then poured to fill the rest of the can. In a few minutes the plaster is firm and the tree is ready for trimming. The final operation seals the colorful foil about the can which is now the base of the tree.

After countless hours of preparation, most of three days are needed to complete six hundred trees. Deliveries to the rooms of those patients unable to attend Christmas festivities in other parts of the hospital are made by volunteer workers. Thus the hearts and hands of over two hundred garden club members unite to bring the spirit of Christmas into the rooms of veterans.

Letters of appreciation were received last year by Mrs. W. L. Prouty, then president of the Colorado Federation of Garden Clubs, from the commanding officer at Fitzsimons Army Hospital, the manager of the Veterans Administration Hospital, the field director of the Red Cross, and from patients themselves. Quoting from a veteran's letter: "I understand the ladies of the garden clubs made the trees and decorated them. I hope they will know how much this patient really appreciates what they have done. There are a dozen or more gaily wrapped packages around the tree. I wish you could see it. It really makes me very happy."

Nor is the joy of these hand-fashioned trees confined to Denver hospitals. Club members get together in their own localities to make miniature Christmas trees for the shut-ins and handicapped, the ill and aged in rest homes, and for homes and churches.

Christmas is near again. Work for the 1957 miniature Christmas tree project has begun. The veterans are remembered.



OF THE WAY TO MAKE MEAD

"... mead must be made by itself of the very best honey. Some many years before, put up rain-water in vessels, and set it in the sun in the open air; then having emptied it from one vessel to another, and made it very clear, . . . they mix a sextarius of old water with a pound of honey . . . and after they have, according to this proportion, filled a stone bottle, and plaistered it, they suffer it to be forty days in the sun, during the rising of the Dog-star; then they put it in a loft which receives smoak."—*From Columella's Husbandry, London 1745.*

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CHRISTMAS TREES AND CONSERVATION

By FRED R. JOHNSON

Do you know that it takes about 37,750,000 trees to celebrate Christmas in the United States, or about one tree for every four or five persons? To express it in another way, the trees used in our annual Christmas celebration would cover about 54,000 acres of young forest. That's the estimate of the U. S. Department of Agriculture for 1955 as reported in the *Journal of Forestry* (Vol. 54, No. 12).

The total number of trees used, comprises 25,370,00 produced in the United States, and 12,410,000 imported from Canada.

To give an idea of the immensity of the Christmas tree business then, wholesale value was placed at \$25,-500,000 and their retail value at \$47,500,000.

The Pacific and Northwest states (including Montana) and the three Lake states produced over half of the trees cut in the United States. Montana is credited with 3,235,000 trees and leads in production.

New England and Middle Atlantic states, followed by the southern group, come next. Six southern Rocky Mountain states (including Colorado) produced 413,000 trees.

Douglasfir is the most widely used tree for our Christmas celebrations, comprising 28% of the total U. S. production. Balsam fir, which comes largely from the Lake states and New England, is next with 24%. Eastern redcedar comprises about 1/8 of the U. S. cut; black spruce of the Lake states amounts to 11%, while 6% is listed as Scotch pine. Since this last species is an exotic which has been widely planted in eastern and central states, Scotch

pine must come from Christmas tree plantations.

Twenty other pine and spruce species comprise the remainder. It is interesting to note the 212,000 lodge pole pines sold for Christmas trees. Believe it or not, 43,000 blue spruces are reported — a rather sharp needled tree for a youngster to run into on Christmas morning!

The kind of trees imported from Canada are not given in the report from which this information is extracted, but undoubtedly balsam fir, black spruce, and hemlock account for the bulk of the twelve million trees.

Eighty-one percent of the trees produced in the U. S. came from *public* land of which only 4% were cut on federal land. The latter seems strange to westerners who have so many national forests at their back doors.

The number of trees harvested from Christmas tree plantations is increasing annually. In 1955, 13% of the trees cut for Christmas use came from this source.

The report for Colorado is not satisfactory, as no record has been kept since 1953 of trees cut on privately owned land. In that year the Colorado State Forest Service discontinued the tagging of trees from private land cutting because there is no law in this state regulating the method and amount of cutting permissible on such lands.

On the other hand, Christmas trees cut on the national forests bear red tags certifying that they have been cut in accordance with good conservation practice. Last year 30,-290 red tagged trees were cut from

Colorado national forests along with 6880 in Wyoming.

Dealers licensed to sell Christmas trees within the Denver city limits are required to tag trees with a tag issued by the city licensing department. The tag bears the words "Certified Christmas Tree Dealer." It means little or nothing, as there is no inspection of the forest to determine if the trees are cut in accordance with sound conservation principles.

In addition to the 69 licensed vendors in Denver last year, there were many more in adjacent suburban areas where the fee is much less than the \$75 charged by Denver. As a result of too many dealers and the large number of untagged, uninspected trees, there have been many unused and wasted trees in the Denver area most every year. In an article in *The Denver Post* on January 6, 1957, numerous dealers reported that up to half of their trees were unsold on Christmas Eve.

The Colorado Forestry and Horticulture Association has advocated for years that the cutting of trees on privately owned land be regulated as a conservation and watershed protection measure.

At the 1955 session of the Colorado legislature, the State Forest Service was reorganized and placed under the State Board of Agriculture at Fort Collins. At the 1957 session, the legislature established a Department of Natural Resources. Its main function is to "develop an

integrated state policy for the conservation and development of resources, and to develop programs for effectuating such prudent and constructive use and orderly development of all resources of Colorado."

A committee of experts has drawn up a statement of policy and a proposed plan of action for Governor McNichols. Later the Governor will appoint a director.

State Forestry Supervisor Charles L. Terrell has been working with this committee, and is also setting up a state forestry program. Mr. Terrell has promised to write an article for a later issue of *The Green Thumb* on the organization and objectives of the State Forest Service.

The Colorado Forestry and Horticulture Association hopes that Mr. Terrell may be able to work out, as part of the state forest program, a plan that will benefit our watershed forests and at the same time will prevent the wasteful cutting of trees for Christmas use. We feel certain that such a project would receive the backing of the Department of Natural Resources whose duties include the management, control, and general supervision of the various agencies assigned to it.

The State Board of Agriculture with respect to its forestry functions is one of the eighteen agencies assigned to the Natural Resources Department under this newly enacted law.



MERRY CHRISTMAS and A HAPPY NEW YEAR

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BAYBERRY CANDLES

Yuletide and candles go together as naturally as Christmas and Santa Claus. The soft flickering light of a candle adds a warmth and friendliness to the Christmas decor of every home, and like nearly all Christmas decorations, tradition establishes the practice. The first use of candles during Christmas is traced back to Martin Luther (1483-1546). The story is that while strolling through the countryside one Christmas Eve, Luther was impressed with the beauty of the heavens and the wintry landscape. He observed the snow flecked evergreen trees sparkling in the moonlight. Returning home, he related his experience to his family and attempted to reproduce the outdoor scene by attaching lighted candles to a small evergreen tree.

Particularly valued as Christmas candles are those made from the wax of bayberry plants. Although these plants are not native to this area, nevertheless, the bayberry candles, with their pleasant fragrance, are appreciated decorations at Christmas time.

The use of bayberry as a source of wax for candle making, dates back to the days of the early settlers, who found they could make candles which were never greasy to touch, never melted in the hottest weather, and whose odor did not offend like those of tallow.

The source of this popular Christmas candle is a little shrub which grows in miniature thickets near the coast from Nova Scotia to Florida and Alabama. The fruit leaves and even recent shoots are fragrant with a balsamic odor. This pleasant fragrance comes from the minute, transparent resinous dots with which the recent shoots and under surface of the leaves are profusely covered.

The bayberry wax is obtained by boiling the berries in water. The wax dissolves, rises to the surface and hardens on cooling; it is estimated that about one third of the weight of the berries consists of this greenish wax. In the days of our earliest settlers, this wax had a high commercial value as it still does today.

Botanically, the bayberry may be described as a shrub, from three feet to eight feet tall, with brownish, grey bark, while the young stems are a golden brown and covered with resinous dots. The leaves of this plant appear rather late and when full grown, they are a leathery, shiny, bright green. They also have resin dots on both sides, accounting for their fragrance. In autumn, they darken to a bronze purple.

The fruit is a dry, waxy berry about one-eighth of an inch in diameter, borne in clusters of four to nine on short stalks. They are at first green, shading through black to a pale grey or white. It is interesting to note that they will persist on the shrub for a period as long as two or three years.

Reprinted from the Finch Arboretum Newsletter.



MULCHING HELPS PLANTS SURVIVE COLD WEATHER

By CHARLES L. TROUTT,
Chief Gardener, Elitch Gardens Co.

Where man does not interfere, leaves of trees, shrubs, and other plants are blown about in the fall until they become lodged against plants or accumulate in hollows where, over the years, they form a layer of nourishing humus. Stems of grasses and other plants may stand erect for a while, but as winter progresses, they are beaten down by wind and snow, forming a loose blanket that has excellent insulating value.

Trivial or unimportant as the idea of winter mulching may appear to some of us, it makes a tremendous difference to plants, especially in an area with open winters. If we could depend on a deep snow lasting through the winter, there would be little need for artificial mulching. However, since this rarely happens, we have to fall back on natural mulches such as disease-free garden refuse. Straw, peat moss, shredded tree bark, ground corn cobs, etc., are other good mulches, and one or several are generally available everywhere. These mulches have the primary purpose of protecting the roots of plants against excessive cold and the damage caused by alternate thawing and freezing.

Deciduous plants, the kind that go through the winter without leaves, should not be mulched until the frost has penetrated the soil to a depth of about an inch. Keeping the soil uniformly cold is very important to such plants, and the mulch in combination with the icy crust, protects deep roots against extremely cold temperatures.

Most spring flowering bulbs

planted in the fall will benefit from a mulch applied soon after planting. This mulching will keep the soil warmer than normal at that time, encouraging root formation before intense cold stops the growth temporarily. Bulbs planted in September or October while the ground is still reasonably warm, and plants occupying their present position for a year or more, should not be mulched until an icy crust has formed.

Mulching is especially important to young plants because the hazards of alternate thawing and freezing may cause them to be heaved out of the ground in the early spring.

Mulching of evergreens bearing needles or broad-leaves follows a different pattern. This protective material is applied well before freezing sets in to keep the frost from eating into the soil too soon so that the roots can absorb all the moisture they can hold. Unlike deciduous plants, evergreens need a fair degree of soil moisture throughout the winter to replace that lost by evaporation through winter foliage. When severe freezing sets in, the entry of frost will be more shallow than with unmulched plants and the deeper roots will function without interruption, supplying the moisture needed to keep the tops alive.

Most gardeners do not realize that the loss of evergreens in late spring or summer is seldom due to a lack of moisture at that time but, is due, rather, to lack of mulching in the winter which would have allowed more absorption of water by the roots during this cold season. Actu-

ally, most such plants are beyond saving when spring arrives. Their plight, however, is not evident until hot weather causes the color to change. To reduce excessive loss of water through the leaves of evergreens, apply abundant water in the fall and screen against winter sun and winds.

Perfectly dormant perennials may be covered completely with whatever mulch has been selected, but those that retain winter foliage, whether green or seriously discolored, are left exposed at the crown with the mulch worked very close against the plant. The finer

the mulch particles, the more water they will hold. Even full saturation causing a solid, frozen crust will do no harm if the area is well-drained and has good surface drainage. There is an important difference between these two factors. In well-drained soil, poor surface drainage will not show up except in winter after severe freezing has been followed by rain or thaw. With the soil still frozen below the softened surface, excess water will stand in puddles for a considerable time if the surface drainage is poor. This condition can be fatal, especially to hardy perennials, because it submerges their crowns.



"Old Ironsides," the American frigate that won her nickname because British shot failed to penetrate her sides in the War of 1812, was built of oak, cedar and pine.

It's coming in March—

What's coming? Spring, sure, but along with spring will be George Kelly's new book, **"How to Have GOOD GARDENS in the Sunshine States."**

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PROGRESS IN OUR ZONAL UNITS

By ROBERT L. WOERNER

In the September *Green Thumb* an alpine-timberline unit of the botanic gardens was discussed. A second new area is now being considered for a botanic station in the transition or foothills zone.

This new site lies just inside the north boundary of Red Rocks Park. A short stretch of unimproved road provides access from the paved park drive which leads to the top of the amphitheater. A crude parking space already exists at the end of this road. Some grading of the parking area and approach road, plus the addition of a control gate, will be all that is required to complete the approach to this unit. Present use is limited to occasional hikers and picnickers.

A trail extends from the parking area to an interesting canyon in the red rocks formation. Development of the unit would require improvements and extensions to be made in this trail to include more points of botanic and geologic interest. Directional and explanatory signs will be provided to tell 'the story' of the unit. Plant specimens and other exhibits will be identified by markers keyed to a printed guide similar to the system proposed for the alpine unit. All development work will be done in cooperation with the department of parks and recreation and the Denver mountain parks division.

Some of the interesting plants to

be found in the area include ponderosa pine, Rocky Mountain juniper, chokecherry, sumac, currant, mountain mahogany, waxflower, rockspirea, and other woody members of the 'foothills' group. Herbaceous members of the community include larkspur, daisy, aster, penstemon, cinquefoil, and many others. There will be an excellent opportunity to study these plants in their natural habitat. It will also be possible to demonstrate some of the ecological relationships to be found on the site.

In addition to the alpine-timberline and transitional units being planned, the botanic gardens can utilize the botanical reserves that have been established through the efforts of the Colorado Forestry and Horticulture Association. Four of these ecologic groups were set aside in 1947 — three near Colorado Springs in cooperation with that city, and one in the Denver mountain parks. The botanic gardens should assist in increasing the value of these reserves to the public by providing interpretive information and labels where necessary.

These natural botanic reserves include the following:

1. Oneseed Juniper Area—Located in the Garden-of-the-Gods, this area offers splendid examples of the oneseed juniper (*Juniperus monosperma*). Some of these trees are close to a thousand

years old. Pinyon pine and dry ridge shrubs are also featured in the area.

2. White Fir Area — Located in North Cheyenne Canyon, this unit features excellent specimens of our native white fir (*Abies concolor*). Many other trees and shrubs are to be found in vigorous growth in this canyon.
3. Yucca Area — This is to be found in Palmer Park in Colorado Springs. A knoll circled by a park drive has been set aside to show off a group of native soapweed or yucca (*Yucca glauca*).
4. Silver Cedar Area—A tract of 240 acres was set aside by the city of Denver as a permanent reserve for the silver cedar or Rocky Mountain juniper (*Juniperus scopulorum*). The area is astride the Beaver Brook Trail and easily reached from Stapleton Drive.

In addition to the reserves and zonal units that have been mentioned, several others are being con-

sidered and will be developed when suitable sites can be found. These include grassland, montane, and subalpine stations. A Colorado spruce reserve may also be desirable to protect a select stand of this famous tree. With the development of a program of state parks, consideration might also be given to the creation of botanical units in other parts of the state as a part of a state park area. This might particularly benefit people on the west slope where climatic conditions and plant growth are quite different from the drier east slope of the Rockies.

The trustees of the Botanical Gardens Foundation have been aware of the potential of a series of 'botanic gardens' rather than one limited display garden, and references to this line of development were made in the earliest planning for Denver's botanic gardens. It is gratifying to see this program under way, for these zonal units will be of great benefit to the citizens of Denver and the state, as well as to interested people throughout the world.

It was said of John Gerard (1545-1612), who was a British supervisor of gardens, author, and owner of a famous garden himself, that he "laboured with the soile to make it fit for plants, and with the plants, that they might delight in the soile." From *Flowers and Their Histories* by Alice M. Coats.



CHRISTMAS TREES

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WM. R. KREUTZER . . . THE FIRST FOREST RANGER

By LEN SHOEMAKER

When we think of "forest conservation" we usually recall the names of Theodore Roosevelt and Gifford Pinchot who were the foremost crusaders for that great cause. Here, I present the name of another man who worked long and arduously under that banner — William R. Kreutzer, the first forest ranger to be appointed in Colorado and the first, or one of the first, to be appointed in the United States.

At the time of the formation of the Forest Reserve Service, July 1, 1898, Kreutzer, then nearly twenty-one, was working as a cowboy for H. H. Metcalf, a rancher who lived on Plum Creek west of Sedalia. Hearing that Col. Wm. T. S. May had been appointed as Superintendent of Forests for Colorado, Kreutzer rode into Denver on August 8 and applied personally for a job as forest ranger.

On February 1, 1905, when Roosevelt and Pinchot reorganized the old Forest Reserve Service and formed the present Forest Service, Kreutzer had been working as a forest ranger for about six and one half years. He was then stationed at the town of Mesa near the boundary of the Battlement Mesa Forest Reserve.

From the day of his appointment, August 8, 1898, until October 31, 1939, the day he retired, Kreutzer worked continuously for the Government, a period of 41 years, 2 months, and 23 days. His several assignments were: Plum Creek Forest Reserve, August, 1898; Battlement Mesa, May, 1901; Gunnison July, 1905; and Colorado, Febru-

ary, 1921. There he remained until his retirement.

Because Kreutzer was a good administrator, he advanced in rank, becoming Ranger-at-large in 1905, and Forest Supervisor in 1907. His period of service was filled with many exciting experiences, only a few of which can be recited here, but these may give an idea of what an early-day forest ranger had to contend with in his daily life. The early settlers, with whom he had to work, strongly objected to government control and opposed the ranger in almost everything he attempted.

In several forest fires Kreutzer almost lost his life when winds shifted and he was partially or wholly surrounded by fire. On a fire on the Gunnison one night, he fell into an abandoned mine shaft. Down he went for 35 feet, but escaped serious injury when his coat caught on solid mine timbers and broke the force of the fall. He carried several scars due to these incidents.

Although he was a good rider, bronchos sometimes threw him. One pitched him into a pile of stones injuring him severely. Many years later, at Derby Hill near Loveland, his truck skidded into a fence to put him down for the count temporarily. Once on Grand Mesa he was lost in a blizzard and almost froze to death before he was able to find his camp and get into his tent.

His experiences with persons with whom he had to associate were sometimes humorous or troublesome, occasionally nearly disastrous. His first meeting with State Senator

Elias M. Ammons, is a fair example. Ammons, then a rancher on Plum Creek, wouldn't sign up for a grazing permit as required by the new regulations. He told Kreutzer that he would take the matter up with the Washington Office and would have them discontinue such foolishness. He then advised Bill to get another job. Bill didn't do that and Ammons didn't have much success with the commissioner, for later he signed the form which Bill again presented.

On the Battlement Mesa, the cowmen wouldn't comply with Kreutzer's range management plans until he accidentally won their support by riding a bad broncho at one of their gatherings. By fearlessly facing an armed sheepman, who was taking sheep onto cattle range on Grand Mesa, he averted a range war which would have been bloody and hard fought.

Although of limited education, one day at Gunnison he publicly debated the grazing problems of the community with Dexter Sapp, the leading attorney, who led the citizens in their fight against Government control of the ranges. It took him nearly three hours to do it, but he proved to the stockmen that he knew more about range management than Sapp did, and won their approval of his plans.

Following instructions from the Denver office, he placed sheep on the high unused ranges of the Gunnison, and, unwittingly, revived the old sheep and cattle war which had lain dormant for several years. The cowmen wrathfully decided to kill some of the sheep in July 1917. Hearing of their proposed plans, Kreutzer and one of his rangers rode all night to arrive at Pittsburg, on Slate River, ahead of the raiders.

Frustrated in their attempt, they abused Bill shamefully, cursing and striking him and threatening him with a gun. They probably would have hanged him if he hadn't escaped from the man who was guarding him.

The next year someone did drive a band of sheep over a cliff on July 4 killing many of them. This so aroused Bill's ire that he called in James Melrose, an agent of the Department of Justice, and they investigated the matter thoroughly. As a result of the investigation, the sheep and cowmen got together and settled their differences, thus ending sixty years of strife between them.

After Kreutzer transferred to the Colorado (now Roosevelt) National Forest most of his experiences were less exciting for settlers were now accepting the administration of the Forest Service. Fire-fighting, however, was as bad as ever, and even worse in the Boulder District. While fighting a fire there, the wind whipped the blaze around his crew and they ran for their lives. Kreutzer, who had been on the job some 40 hours, blacked out, but his helpers dragged him to safety a few seconds before two fires came together.

After his retirement in 1939, Kreutzer continued to live in Fort Collins where he and his wife, Mary, were loved and respected by all who knew them. On June 10, 1955, Bill was awarded an Honorary Doctor of Science Degree at the Colorado A. & M. College commencement exercises. This was an honor that he had long deserved. He passed on January 2, 1956.

The above is an excerpt from Mr. Shoemaker's forthcoming book The First Forest Ranger, which will be out in January.





STATE PARK NOTES

Governor Steve L. R. McNichols recently announced the appointment of Harold W. Lathrop as director of our newly created State Parks and Recreation agency.

Lathrop, 56, of Wheat Ridge, has for the past 11 years been the western representative for the National Recreation Association. Before that, he served as director of Minnesota state parks for 12 years. He is a native of Lancaster, Wisconsin and a graduate of the University of Minnesota. He will assume his new duties during December.

His job will be to develop new state parks and recreation areas. This work will include roadside parks. Colorado, as you know, does

not as yet have a state parks system although it does have a state forest in North Park.

This new agency was created by the last legislature and Governor McNichols appointed a policy making board last summer, which we noted in a previous issue of *The Green Thumb*.

Mr. Lathrop is enthusiastic about the new job. His first undertaking will be to make a survey of park needs, and then develop a long range plan for the growth of our state parks.

The Editorial Board of *The Green Thumb* would like to take this opportunity to thank all of you who contributed stories, illustrations, and photographs during the past year. We feel that this has been one of the best years of our publication and we hope that our readers have found it enjoyable and informative.



Season's Greetings



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Seasonal Suggestions

December! The crunch of footsteps on frozen snow, streams and rivulets glazed with sparkling crystals, evergreens flexing snow-laden branches, tree skeletons silhouetted against the winter sky, the aroma of pinyon smoke, bundled children, snowmen and sleds, foot-weary adults, the Christmas rush, sleeping gardens, sputnik, muttnik, and whatnik. What next? Suggestions for gardening on the moon? Perhaps *next* December, but right now let's get back to the business at hand—winter gardening in the High Plains country. If you followed suggestions in the October-November issue, your garden should be in good shape for winter. However, if you haven't got all those things done, go ahead and do them now, for January and February are usually our most severe winter months. Protection applied now is likely to mean success over failure with tender plants. The following are a few extra thoughts on what might be done at this time:

EVERGREENS

Use twine to tie together the branches of upright evergreens in order to prevent them from spreading and breaking under heavy snows. If you are trying some of the less hardy evergreens, a screening of burlap will cut down on wind desiccation and will screen off burning winter sun. Although we have been blessed with ample moisture so far this year, you may need to water your evergreens if December turns out to be a dry and open month.

DECIDUOUS TREES

Those of you in urban or rural areas who are growing fruit trees should protect them from rodent and rabbit damage by placing a cylinder of hardware cloth around the trunks. Now, also, is a good time to remove trees that have out-grown their location, or ones that have died this past season. This operation can be done with little or no damage to lawns and flower beds. For winter enjoyment of trees, look for differences in bark color and the identifying silhouettes presented by each specie.

BULBS

Spring flowering bulbs can still be planted providing the ground is workable. Or, you might try forcing a few of them, such as narcissus, for winter bloom indoors. Please don't forget the stored bulbs of glads, dahlias and begonias. They should be checked occasionally throughout the winter for signs of rot or dehydration. If rot is present, remove the infected bulbs and adjust your storage facilities to prevent further rot. If the dahlias or cannas show signs of drying and shriveling, slightly moisten the storage medium.

BIRDS

While many of our feathered friends have gone south for the winter, we find that many have taken up winter quarters here. When the weather

is good, they seem to forage pretty well for themselves, but when snow covers the ground they are often hard pressed for food. Set up a bird feeding station in your yard and enjoy the antics of the different feathered personalities who come to take advantage of your winter hospitality.

HOUSE PLANTS

These plants become more noticeable and attractive now that outdoor plants have faded from the limelight. Like the plants in our gardens, they need some attention if they are to perform well. The addition, about once a month, of soluble fertilizer to water will take care of mineral requirements. Check plants occasionally for aphids and mealy bugs. If only a few are present, they can be removed with a cotton swab and alcohol. However, if there is a heavy infestation, spray with malathion. Frequent spraying or syringing of the foliage of most house plants seems to be quite beneficial. In ceramic and metal containers without drainage, take care not to water too much. Small quantities of charcoal in the bottom of such containers helps keep the soil sweet.

WINTER "CULTIVATION"

Now that the garden is asleep, we should take time to catch up with the new advances in gardening. This we can do by reading garden magazines, specialized books, and attending garden club meetings. We have added a number of new volumes to the Helen Fowler Library here at Horticulture House this year. We also have all the current and major garden magazines on our periodical rack. Take advantage of your membership in C.F.H. & A. by coming in to get acquainted with your library. These books can be checked out for two weeks and renewed for an additional two weeks if need be.

Christmas gift suggestions: Of course *The Green Thumb* is top-most on our list. What could make a more helpful and lasting gift? Just use the handy form on page 360 and we'll start the gift membership with this issue of *The Green Thumb* with a special card with your name and Christmas greetings enclosed. Other suggestions: gift certificates for nursery stock (available at most of the nurseries advertised in *The Green Thumb*), garden books, hand tools, and house plants.

Merry Christmas!

Pat.



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SAFETY DURING THE YULETIDE

1. Select a Christmas tree that has been cut as recently as possible. The needles of a recently cut tree are full of moisture; they are pliant and lustrously green. As they dry out they become brittle and yellowish.

2. Saw off the end of the trunk diagonally one or more inches above the original cut. Stand the tree in a pail of water, keeping the water level well above the cut surface. Replenish the water as it is absorbed by the tree.

3. Keep the tree in a cool place outdoors until you are ready to set it up in the house, preferably only a day or two before Christmas.

4. Place the tree in the coolest spot in the room. If a radiator or warm air vent is near the tree, shut it off.

5. Don't use decorations that will catch fire easily.

6. Don't operate electric trains close to the tree.

7. Don't use candles for lights. Electric lights are better—and much safer.

8. Examine all light cords carefully for frayed or worn spots in the insulation. Be sure the wires are attached tightly to the plugs.

9. Don't plug in the wires to an outlet beneath the tree.

10. Try to arrange the lights on the tree so that none will be in direct contact with the needles. If needles near a bulb start to turn brown, change the location of the bulb.

11. Don't let the tree lights remain burning when you leave the house, even for an hour. And, of course, turn them off at bed-time.

12. Keep the water container in the tree-stand filled with water. Absorption continues, though at a reduced rate, until the tree is quite dry.

13. Keep a fire extinguisher where it can be reached quickly and easily should it be needed.

14. Observe these precautions for a fire-free, Merry Christmas and a Happy New Year. *From The Shade Tree Digest of the Associated Arborists of America, December 1955.*

PEERLESS PRINTING COMPANY

extends

Christmas Greetings

and

Best Wishes

for

A

Happy

New Year



The Green Thumb

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